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Automobile Dealer Quality Cost: A Review

Dr. S.N.Teli¹

¹Professor, Bharati Vidyapeeth College of Engineering,
 Navi-Mumbai, shivanandteli@yahoo.com

Amar Murumkar²

²PG Student, Saraswati College of Engineering, Navi-
 Mumbai, India, amarmurumkar@yahoo.co.in

Abstract: In automobile industry, dealerships play an important role in the initial and on-going relationship between the purchaser and vehicle manufacturer. Service quality provided by dealers is essential for profit and reputation of automobile manufacturers. For example, dealers are supposed to inspect new cars; if problems aren't caught and fixed before the customer experiences them, the customer will form a lower opinion of the car's quality.

Dealerships represent the car manufacturers at the point of sale and act as a means of continuous contact between the car producers and the customers, long after the customer has taken delivery of the vehicle. Thus, it is important that a dealership maintains the maximum possible quality standards to ensure good business which keeps on expanding and result in reduction in the COQ of dealership.

Keywords: Automobile Dealer Quality, Cost of Quality, Warranty Cost.

I. INTRODUCTION

1.1 Cost of Quality

Quality has become one of the core factors for almost all manufacturing and service companies that aim to win sufficient orders. Therefore, improving quality is considered to be one of the important strategies to attain customer loyalty in today's complex global competitive environment. The studies concluded that any serious endeavor to improve quality will lead to an increase in the cost of the product or service since improving quality has its own costs. As a result, measuring the cost of quality is important because it provides information about the financial consequences of adopting quality improvement programs (Omar and Murgan, 2014).

In general, the cost of quality (COQ) is the total of the cost incurred for quality control process and the cost of product defect. Measuring quality costs are an essential step in achieving competitiveness because these costs are strongly related to the company's annual revenue. One of the most important categories of quality costs is that of external failure costs. Within this quality cost category, there are the claims against the warranty (Cauchick et al., 2004). COQ concepts affect operating costs, profitability, and consumer needs. Higher product quality standards have been a trend among world-class manufacturers since the 1960s. Several studies indicate that COQ is around 30% of total manufacturing costs. Measuring the quality cost in a small-scale industry is very important and useful. It helps to identify the specific quality levels and ultimately improves the quality (Chopra and Garg, 2011). The objectives of having a COQ system in the industry are (Uyar, 2008); (i) Overall quality improvement; (ii) To set

cost reduction targets and measure progress; (iii) To have better control of quality activities; (iv) To have better strategic plans; (v) To evaluate the effectiveness of the quality system; (vi) To motivate employees. Srivastava (2008) explained taxonomy of quality costs for his research study as shown in Fig. 1.

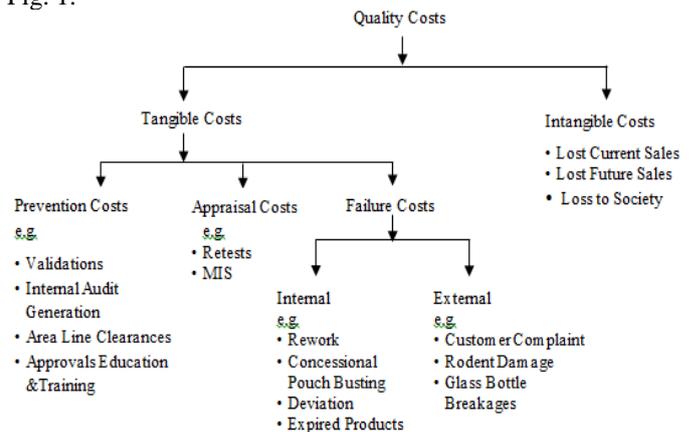


Fig. 1. Taxonomy of quality costs

1.2 Types of Poor Quality Costs or Cost of Quality

Poor-quality cost is defined as all the cost incurred to help the employee do the job right every time, and the cost of determining, if the output is acceptable, plus any cost incurred by the company and the because the output did not meet all the required specifications and/or customer expectations. Fig. 2 lists the elements of Poor-quality costs (Harrington, 1997).

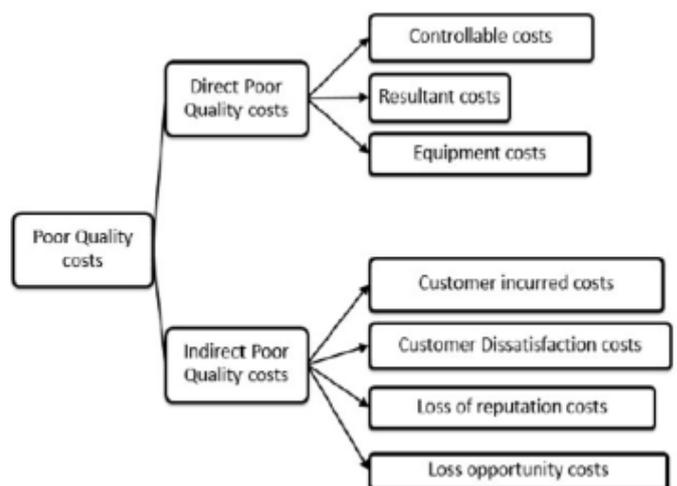


Fig. 2. Direct and Indirect Cost components

Prevention Costs: The costs of all activities specially designed to prevent poor quality in products or services. Examples are the costs of new product review, quality planning, supplier capability surveys, process capability evaluations, quality improvement team meetings, quality improvement projects, quality education and training.

Appraisal Costs: The costs associated with measuring, evaluating or auditing products or services to assure conformance of quality standards and performance requirements. These include cost of incoming and source inspection/test of purchased material; in process and final inspection or test; product, process, or service audits; calibration of measuring and test equipment; and the costs of associated supplies and materials.

Internal Failure Costs: Failure costs occurring prior to delivery of the products or furnishing of a service, to the customer. Examples are the costs of rework, reinspection, retesting, rework, trial review, and down grading.

External Failure Costs: Failure costs occurring after delivery of the product or after furnishing of a service to the customer. Examples are the cost of processing customer complaints, customer returns, warranty claims, product recalls.

Customer-incurred PQC: Customer incurred COQ come into view when a product fails to meet the requirements of the customers. Some typical customer-incurred PQC are mentioned below.

- Loss of productivity while equipment is down;
- Travel costs and time spent to return defective merchandise; and,
- Repair cost after warranty period is over.

Customer dissatisfaction PQC: Customers now require a much better product to satisfy their expectations and demands. Companies may very well be making parts to specifications, but the specifications may not be good enough to retain old customers, let alone attract new ones. Products that perform at an acceptable level today may not do so tomorrow and probably not the next day. Realizing that customer's expectations may change and continuously resetting standards is the only way to keep the market share.

Loss of reputation COQ: Loss of reputation and working strategies of COQ are very difficult to quantify. Similar is the case in predicting the reasons for customer dissatisfaction and customer incurred COQ. Expenditure incurred due to loss of reputation may change or develop from customer dissatisfaction costs in that they depend on the customers.

1.3 Cost of Quality Model

Feigenbaum (1951) classified the costs associated with conformity along four dimensions: (1) Prevention Cost; (2) Appraisal Cost; (3) Internal Failure Cost; (4) External Failure Cost. The total number of errors will decrease, as prevention cost increases, thereby reducing the total error cost. Appraisal costs do not reduce the total number of errors. They only detect the error before the product is delivered to the customer. The improvement of quality through quality cost reduction (defect reduction, rework, reduce waste, eliminate and machine idle time reduction) leads to productivity improvements (Harrington, 1987).

As per the (Carr and Ponoemon,1994) observation, internal failure is the most expensive whereas prevention are the least expensive quality cost component, the combination of internal and external failure costs is always higher than prevention and appraisal costs, and the quality rejects rate decreases with increased volume output. COQ models into five groups of generic models as mentioned below Table I, (Schiffauerova and Thomson, 2006).

TABLE I Generic COQ Models and Cost Categories

| Generic Model | Cost /Activity Categories |
|--|--|
| P-A-F models | Prevention+ appraisal+ failure |
| Crosby's model | Conformance + non- conformance Prevention + appraisal +failure + opportunity |
| Opportunity or intangible cost models | Conformance +non-conformance + Opportunity Tangibles + intangibles P-A-F (failure cost includes opportunity cost) |
| Process Cost Models | Conformance +non- Conformance |

As per the basic assumptions of the PAF model are that investment in the areas of appraisal cost will reduce failure costs and that further investment in prevention activities and other similar preventive measures will also reduce failure costs. (Porter and Rayner, 1992). Crosby sees quality as "conformance to requirements", and therefore, defines the cost of quality as the sum of price of conformance and price of non-conformance (Crosby, 1979). Intangible costs are costs that can be only estimated such as profits, not earned because of the lost customers and reduction in revenue owing to non-conformance. (Sandoval and Beruvides, 1998) incorporate opportunity losses into traditional P-A-F quality expenses. According to them, opportunity losses may be broken down into three components: Under-utilization of installed capacity, inadequate material handling and poor delivery of service.

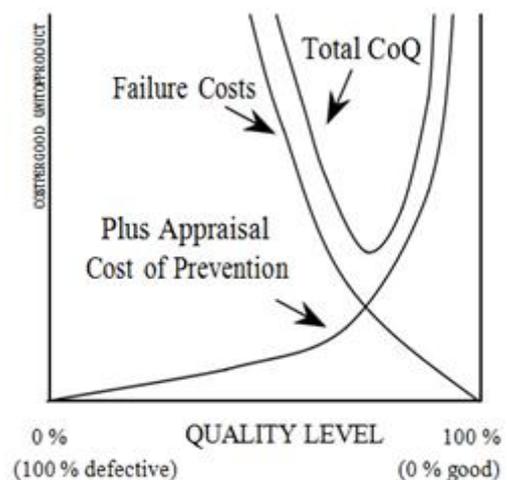


Fig. 3. Old Model of Quality Cost

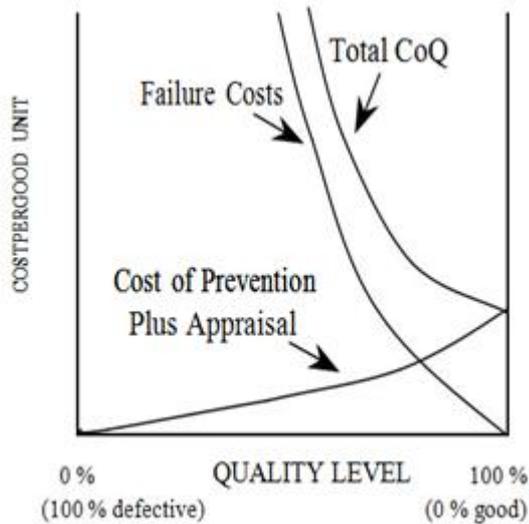


Fig. 4. New Model of Quality Cost

Ross (1977) developed the process cost model and first used for quality costing by Marsh (1989) represents quality cost systems that focus on process rather than products or services. Process cost is the total cost of conformance and nonconformance of a process. The use of a process cost model is suggested as a preferred method for quality costing within total quality management (TQM) as it recognizes the importance of process cost measurement and ownership, and represents a more integrated approach to quality than a P-A-F model (Porter and Rayner, 1992). Tsai (1998) proposes an integrated COQ-ABC framework, in which ABC and COQ systems are merged and share a common database to supply various cost and non-financial information for related management techniques.

1.4 Goal of Quality Cost

If the manufacturing or service organization's quality program had been geared toward defect prevention and continuous quality improvement, defects and their resulting costs would have been minimized, thus leading the most desirable condition. The goal of any quality cost system thus can help in aiding quality improvement work done that will lead to functioning and management, that can lead to a much more cost reduction opportunity. The strategy for using Quality Cost is simple and is as follows (Teli et al., 2012).

- Take direct attack on failure costs in an attempt to drive them to zero;
- Invest in the right prevention activities to bring about improvement;
- Reduce the appraisal costs, according to the results achieved;
- Continuously evaluate and redirect prevention efforts to gain further improvement.

II. LITERATURE REVIEW

2.1 Automobile Dealer

Automakers must face several challenges, including the reduction of technological differentiation between competitor products, decline of product margins, and rising cost of the

additional service, whereas at the same time, customer expectations for quality and services are increasing (Jose and Jos, 2012).

Dealerships represent the car manufacturers at the point of sale and act as a means of continuous contact between the producers and the customers, long after the customer has taken delivery of the vehicle. The level of service quality demanded by new car owners is continuing to rise, increasing the pressure on manufacturers and Dealerships alike to provide better quality products and services (Kristianto et al., 2012). While the manufactured quality of cars have greatly improved over the past few decades (Zadry and Yusof, 2006), the quality provided by dealerships is still being questioned. Evidently, most of which is anecdotal, tends to indicate that there is reluctance within many new car dealerships to embrace quality principles, leading to a less than desirable experience for customers buying and servicing motor vehicles.

Joetan and Kleiner (2004) state "Automobile sales persons have long been viewed by the public as cunning and cold". Sinha (2006) discusses the need for improved quality in an article titled "Quality needed at more car dealerships". Dealerships form an important link in the value system of the automotive industry, which can be broken down into four major groups: component suppliers, car manufacturers, dealer networks, and buyers.

The role of car dealerships within the industry cannot be understated. New automobiles move from the manufacturer's assembly line to the consumers' driveway via new car dealerships. In the retail, automotive sector, about 70% of the dealership's gross profit comes from service, parts, and body operations. Therefore, car dealerships play an integral role in the initial and ongoing relationship between the purchaser and vehicle manufacturer (Kachadourian, 2005).

Market orientation is positively associated with the performance of dealers in terms of customer service quality, sales growth, and market share increase. The customer-dealer relationship in the automobile market segment referring to the key factors, which establish service quality encompassing tangibility, responsiveness, trust, accuracy, and empathy. The high-conformance quality services of dealers and value-added customer relationships offering high customer satisfaction, develop lifetime customer value, and strengthen the customer-dealer relationship (Rajagopal, 2009).

In the automotive industry, dealer efficiency is a key factor in obtaining and maintaining competitiveness because it provides fundamental strategic information. It is therefore of crucial importance to establish a model for assessing the efficiency of the distribution network that may be useful not only for the dealerships but also for the parent company (Biondi et al., 2013).

Clearly senior management of dealerships need to ensure that service quality is integrated into all dealership procedures and ingrained into all levels of the organization. With higher than normal turnover rates experienced by the dealership, senior managers must endeavor to develop policies which instill the quality message on a day-to-day basis. To achieve these outcome dealerships will be required to employ personnel dedicated to the enhancement of quality throughout the dealership (Fraser et al., 2013).

In the automotive sector, a manufacturer must satisfy the dealers' expectations in terms of communication effectiveness, commitment in marketing policies, effectiveness in order handling, technical support, post sales service, and dealer's involvement in R&D. The relationship between the manufacturer and dealer is mutual, as their profitability and competitiveness depends on each other (Aboltins and Rivza, 2014).

2.2 Relation between Dealer, OEM, and Customer

Jose et al. (1992) proposed a simple model that incorporates satisfaction with the physical product, satisfaction with the service, brand loyalty and dealer loyalty which is shown in fig.3.

One key to obtain Dealer satisfaction is cooperation. Establishing, developing, and maintaining successful relationships between manufacturers and dealers requiring commitment at different stages, encompasses working partnerships, co-marketing alliances, fast and clear communication, interrelationships in the recovery of dissatisfaction, coordinated development of research and development processes, efficiency in order handling, and high performance on after sales. Effective cooperation is required for dealer satisfaction and channel success. Trust is the core of good chain relationships, has a central role between satisfaction and reputation. In the automotive industry, the highest level of vendor support is associated with higher levels of satisfaction in the channel Azila et al., (2011).

Along with the rapid growth of electronic services (e-services), supplier-dealer marketing channels have changed. Channel power is proposed to have moderating effects on relationship quality and dealer satisfaction. Results of data analysis indicated that e-service quality has a positive effect on relationship quality, which in turn has a positive effect on dealer satisfaction. Furthermore, non-coercive power had a significant moderating effect on relationship quality and dealer satisfaction, but coercive power did not. The results imply that dealers are more tolerant of coercive power. Figure 3 demonstrates a research framework concept that suggests that e-service quality (Chang, 2012).

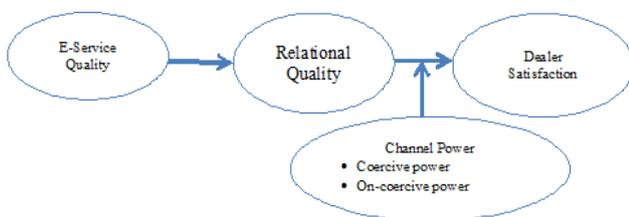


Fig. 3. Conceptual Framework E-service Quality

Ogenyi and Blankson (2000) have investigated the fairness of the marketing processes used by the manufacturer in relation to its main dealer are as follows.

1. Promotes bilateral communication.
2. Exercises a high level of two-way communication.
3. Treats all dealers similarly—applies consistent policies and decision-making procedures across all dealers.
4. Alters its policies in response to dealer objections.
5. Consider dealer's objections to the manufacturer's retail marketing programs.

6. Hardly ever explains its decisions to dealers.
7. Provides reasons for any change of policy affecting the dealers' markets. Strategy is knowledgeable about the dealers' local market environment.
8. Takes pains to learn about the dealers' business operation.
9. Treats the dealers with respect, is polite and well-mannered.

2.3 Dealer Management System (DMS)

DMS for automotive industry is a comprehensive software solution that simplifies day-to-day operations, increasing performance efficiency. It covers every stage of distribution operations and all interactions with OEMs and dealers. This solution also saves time and money. It is a functionally rich, high speed, integrated application that enables fast and accurate decision making based on real-time business data from geographically scattered dealer network which are: Features and functionalities, Pre-sales parts and spares, Vehicle sales, vehicle service, customer relationship management (CRM), basic financial accounting, workflow automation and alerts. The benefits of DMS solution include (Gupta and Baben, 2016).

1. Improves sales forecasting, based on real-time sales inputs;
2. Improves stock visibility and inventories at dealerships, aiding in the reduction;
3. Increases revenues through higher number of converted opportunities and customer retention;
4. Increases control for effective monitoring of the business and decision making;
5. Online on boarding, provisioning, test, and certification of dealerships;
6. Complete ownership, including maintenance, trainings, remote helpdesk, and sustenance.

Dealership Management System (DMS) often contains software that caters to the needs of the finance, sales, parts, and inventory and administration components of running the dealership. DMS software typically includes support for all aspects of running a Dealership such as: (1) Tracking vehicle inventory (2) Tracking sales (3) Finance and insurance calculations (4) Menu selling systems (5) Tracking customers (and customer follow up) (6) Accounting (7) Managing Dealer website (8) Calculating employee commissions (9) Purchase order tracking (10) Parts inventory (11) Work order management (12) Appointment scheduling (Padawanx, 2009).

2.4 Customer Relation Management (CRM)

Since firms are increasingly dependent on the relationships they have with their customers, the development of a strong customer relationship has become key issues for business managers (Cheng et al., 2008).

Elkordy (2014) observed that various constructs, including customer focus, CRM organization, knowledge management resource, CRM technology and customer orientation have a positive impact on the performance of the organization. These CRM dimensions directly and indirectly influence the

satisfaction and retention of customers, which ultimately leads to better sales growth.

Addressing customer complaints and providing a proper resolution to them can turn a prospective client into a loyal customer. Further, managerial competence, knowledge management, customer orientation and customer empowerment can add value to CRM to enrich the cultural integrity of customer loyalty management and provide a unique competitive edge to the organization (Bhat, 2016). CRM is an enterprise approach for understanding and influencing customer behavior through meaningful communication to improve customer acquisition, customer retention, customer loyalty and customer profitability (Swift, 2000).

CRM belongs to e-business applications which are developing fast not only thanks to new possibilities brought by technology, but also thanks to changing attitudes and expectations of customers. It is not enough to listen carefully to the customer requirements; it is important to cooperate with them, i.e. give them the opportunity to take part in new products and services creation by motivating them to communicate and help define new products and services (Dohnal, 2001). Winer (2001) proposed a CRM model which consists of seven basic components comprising: (1) Database of customer activity (2) Analyses of the database; (3) Given the analyses, decisions about which customers to target (4) Tools for targeting the customers; (5) How to build relationships with the targeted customers (6) Privacy issues (7) Metrics for measuring the success of the CRM program.

The five most popular CRM activities are included: information sharing, customer involvement, long-term partnership, joint problem solving, and technology-based CRM (Lin et al., 2010):

1. **Information sharing:** It refers to the sharing and exchange of essential and exclusive information through interactive activities between manufacturers and their customers. The commonly shared information includes market demand, customer preferences, sales promotion, and new product introduction.
2. **Customer involvement:** It is related to customer participation in new product development (NPD) activities, technical meetings, supply chain annual conference, and market evaluation conferences. Customers normally provide market trend/direction and technical support in the process, which should lead to better understanding of future demands.
3. **Long-term partnership:** It is a business relationship with trust and commitment between two firms. Both firms must share similar goals and pursue mutual profits on a reliable and dependable basis.
4. **Joint problem solving:** It refers to collaboration between manufacturers and customers in solving problems together and sharing responsibilities when they encounter difficult or unexpected situations.
5. **Technology-based CRM:** It involves manufacturers using computer technologies to facilitate various CRM activities and actively offer technology assistance to customers, including data storage, data mining, and CRM software systems.

III. BEST PRACTICES`

3.1 Best Practices for Dealership Quality Management

One way for Dealerships to improve their level of service and develop a quality culture is to implement a total quality management (TQM) philosophy throughout their organizations. This proven business strategy has been successfully employed by many organizations around the world, not only, improving quality of products and services but also reducing business costs (Valmohammadi, 2011). Prajogo (2005) explains that “the emergence of TQM has been one of the major developments in management practice in the last two decades”. It is now recognized that firm which foster a culture of quality service through TQM are more successful than firms that do not (Kumar et al., 2009). Having said that, Evans and Lindsay (2002) argued that while “many organizations have integrated quality principles so tightly with daily work activities that they no longer view quality as something special. Unfortunately, many other organizations have barely begun”. It is also recognized that most of the TQM attention has been directed towards manufacturing practice with little consideration being given to the service sector (Kumar et al., 2011).

Vandermerwe and Rada (1989) introduced the term servitization, to improve the product value sold to customers by providing a package of services (e.g., technical support, self-service, and knowledge), these additional services assure better functionality and reliability of the product. In this regard, after sales service is one cluster of services (e.g., maintenance, repair, warranty, etc.) offered to customers to optimize the utilization of the product in its middle and end life cycle (Patelli et al., 2004), besides after sales services from an independent business model as the management must fulfill financial targets (Cost, profit, RON, cash flow) and benchmarking criteria (market share, customer satisfaction and loyalty). Consequently, these figures are continuously measured and evaluated by means of key performance indicators KPI (Goffin, 1999). The after sales services are classified into four categories (Legnani et al., 2013).

1. **Selling product services:** They deal with all required documents and procedures for completing the selling process (e.g., ownership transferring, training, insurance, maintenance contract and warranty extension).
2. **Product usage services:** They focus on the requirements of using the product efficiently (e.g., product check-up, customer care, preventive maintenance, training).
3. **Product recovery services:** They are concerned about all the technical activities performed to recover and to keep the product's functioning (e.g., failed parts replacement, regular maintenance).
4. **End of life product services:** They deal with the regulations of disposing of the product.

Nevertheless, after-sales services play a significant role in bonding customers with the brand, namely “customer retention”, rather than enhancing the brand image by paying more attention to customer satisfaction, which presents a feasible marketing channel (Saccani et al., 2007). Furthermore, after-sales services unveil the customers' needs and expectations that form the main indicator for customer

retention and loyalty (Gallagher et al., 2005). Thus, establishing continuous and developing connections with customers will be positively cultivated in the return of investment, customer retention and even enhancing the brand image. In this regard, accomplishing high customer satisfaction level requires producing high quality of products (Hendricks and Singhal, 1997).

Another approach visualizes the relation and interdependencies between vehicle technology in after-sales service objectives and car workshop technologies, raising the significant question of how to design an efficient service development process to enable high-quality service processes (Juehling et al., 2010). Khare and Chougule (2012) developed a model that detects the anomalies between the repair manual instructions and the related decisions made by a technician.

The lean concept is concerned with focusing on the provision of delivering value to the customer and with identifying waste and removing them. Womack and Jones (1996) propose five steps to becoming lean: (1) Specify value; (2) Identify the value stream; (3) Make the value-creating steps flow; (4) Promote a pull culture; (5) Pursue perfection.

The expected outcomes of lean dealership that, 'culture change to focus on customers' needs is vital. It must be supported with reward systems linked to issues such as (Kiff, 2000); (1) Customer satisfaction (2) Customer retention rates (3) Customer propensity to recommend or refer (4) Dealership profitability and return on investment.

For automotive distribution, the promise of the internet is cost reduction. Inclusive of post-delivery, warranty work, Mateyka (2001) has estimated that post-manufacturer distribution costs approach 30% of manufacturer suggested retail price (MSRP). For its imported models, Toyota has reported that distributed costs represented over 40% of the vehicles MSRP (Cantwell, 2001). Urban et al. (2003) put forward the following automotive web- based retail model:

1. The manufacturer/Dealer (the virtual Dealership) would establish a nationality promoted web site with detailed product information.
2. Internet customer would order a vehicle to their specifications over the Internet, firming the order with a minimal nonrefundable, credit card down payment.
3. Customer showing interest in new vehicle, but with a vehicle to trade, would be given cash bids from several independent car buyers refereed by a virtual Dealer.
4. The vehicle would be delivered to the customer within 24 hours through a nationwide independent service center network, such as Goodyear, that would deliver the car, do warranty work and the parts/service..

Advantages of the virtual dealership for customers are ease of ordering via the internet, ability to get an exact vehicle model with the precise mix of interior/ exterior colors and options by the customer, quick delivery of new vehicles, lower prices due to reduced distribution costs and lower prices – sale service.

The Five Star program was publicized in brochures and magazine ads, but its impact on dealer quality wasn't strong enough to prevent the 4,700 Chrysler dealers from sliding to the bottom of a consumer magazine's dealer ratings. By increasing staff and customer participation, and adding common quality practices, Chrysler (Zatz, 1999) hopes to achieve successful continuous improvement within all Five

Star Dealerships. Some of their requirements are: (1) Staff surveys (2) Repair Quality (3) Facilities (4) Technology (5) Follow- through (6) Normal processes (7) Review audits.

A customer loyalty is a critical aspect of the dealership. When a customer feels that he/she is imperative and is being treated with reverence he becomes loyal. The following are the most critical elements which impact the customer to maximum extent (Lad, 2015). (1) Reception area; (2) Waiting; (3) Sales staff; (4) Privacy during sales Process; (5) Test drive handover; (6) Get familiar; (7) Go beyond the standard; (8) Keep customers informed (9) Stay in Touch.

IV. CONCLUSION

Dealerships play a major role in representing the manufacturers in the market place through meaningful customer engagement. Poorly defined and ineffective sales & service processes are often the root cause of substandard dealer performance. While high marketing expense, interest cost, manpower cost and capital expenditure are identified as major challenges to dealership's growth and sustenance, focus on primary drivers while improving internal inefficiencies will help improve overall dealership profitability. 'Dealership Evaluation System' will facilitate in achieving superior customer experience going forward.

Dealerships lose at least 60% of service revenue from post warranty therefore it is very essential to handle customer relationship as good as possible to reduce the cost of quality. 89% companies see customer experience as a key factor in driving customer loyalty and retention. It costs around 5 times more to acquire a new customer than retaining an existing one so it is very important for dealers to maintain the highest quality standards in order to ensure good business which keeps on expanding. This will result in the reduction in the COQ of the Dealership and the OEM having a greater share of the market.

REFERENCES

- [1] A. Murumkar, S. Teli, U. Bhushi, and A. Deshpande, "Hidden Cost of Quality: A Review", Proceedings, 11th International Conference, ISDSI, IIM Trichy, pp. 137-138, 28-30th Dec 2017.
- [2] A. Schiffauerova and V. Thomson, "A Review of research on cost of quality models and best practices", International Journal of Quality & Reliability Management, Vol. 23 No.6, pp. 647 – 669, 2006.
- [3] D. Urban and G. Hoffer, "The virtual automotive Dealership revisited", Journal of Consumer Marketing, Vol. 20 No. 6, pp. 570 – 578, 2003.
- [4] D. Zatz, Dealer Quality at Chrysler: New ways of Assessing and Increasing Service, http://www.qualitydigest.com/may99/html/body_chrysler.html, 1999.
- [5] E. Joetan and B. Kleiner, "Incentive practices in the US Automobile Industry", Management Research News, Vol. 27 No. 7, pp. 49-56, 2004.
- [6] G. Kachadourian, "Car makers fight for service customers", Tire Business, Vol. 23 No. 1, pp. 6, 2005.
- [7] H. Chang, C. Lee, and C. Lai, "E-service quality and relationship quality on Dealer satisfaction: Channel power as a moderator", Total Quality Management & Business Excellence, Vol.23 No. 7–8, pp. 855–873, 2012.

- [8] H. Zadry and S. Yusof, "Total quality management and theory of constraints implementation in Malaysian automotive Suppliers: a survey result", *Total Quality Management*, Vol. 17 No. 8, pp. 999-1020, 2006.
- [9] J. Dohnal, "CRM and customer centric culture from Idea to Knowledge", *Frontiers of e-Business Research*, pp. 59 -70, 2001.
- [10] J. Evans and W. Lindsay, *The Management and Control of Quality*, 5th Ed., Thomson Learning, Cincinnati, OH., 2002.
- [11] J. Kiff, "The lean Dealership – a vision for the future: from hunting to farming", *Marketing Intelligence & Planning*, Vol. 18 No. 3, pp.112 – 126, 2000.
- [12] J. Mateyka, *Automotive Distribution Costs*, A.T. Kearney, Chicago IL, 2001.
- [13] K. Aboltins and B. Rivza, "The car Aftersales Market Development Trends in the New Economy", *Procedia - Social and Behavioral Sciences*, Vol. 110, pp. 341-352, (2014),
- [14] K. Fraser, B. Tseng, and H. Hvolby, "TQM in new car Dealerships: a study from the firms' perspective", *The TQM Journal*, Vol. 25 No.1, pp. 5- 1, 2013.
- [15] L. Patelli, M. Pelizzari, A. Pistoni, and N. Saccani, "The after-sales service for durable consumer goods. Methods for process analysis and empirical application to industrial cases", *13th International Working Seminar on Production Economics*, hlm., pp. 289-299, 2004.
- [16] M. Elkordy, "The Impact of CRM Capability Dimensions on Organizational Performance", *European Journal of Business and Social Sciences*, Vol. 2 No. 10, pp. 128-146, 2014.
- [17] M. Jose and G. Jos, "The importance of customer satisfaction in Y. Kristianto, M. Ajmal, and M. Sandhu, "Adopting TQM approach to achieve customer satisfaction", *The TQM Journal*, Vol. 24 No. 1, pp. 29-46, 2012.
- [18] M. Sinha, "Quality needed at more car Dealerships", *Quality Progress*, Vol. 39 No.11, p. 8, 2006.
- [19] M. Young, *The Technical Writer's Handbook*. Mill Valley, CA: University Science, 1989.
- [20] N. Saccani, P. Johansson, and M. Perona, "Configuring the after-sales service supply chain: A multiple case study", *International Journal of Production Economics*, Vol.110 No.1-2, pp. 52-69, 2007.
- [21] O. Ogenyi and B. Charles, "New car retailing: an assessment of car manufacturers fairness on main Dealers", *Journal of Strategic Marketing*, Vol.8 No.3, pp. 261-275, 2000.
- [22] P. Cauchick and S. Miguel, "Assessing Quality Costs of external failures (warranty claims)", *International Journal of Quality & Reliability Management*, Vol. 21 No. 3, pp. 309 – 318, 2004.
- [23] R. Kumar, D. Garg, and T. Garg, "TQM success factors in North Indian manufacturing and service industries", *The TQM Journal*, Vol. 23 No. 1, pp. 36-46, 2011.
- [24] R. Swift, *Accelerating Customer Relationships – Using CRM and relationship technologies*, Upper Saddle River, NJ: Prentice Hall, 2000.
- [25] R. Winer, "A Framework for customer relationship management", *California Management Review*, Vol.43 No.4, pp. 89–105, 2001.
- [26] Rajagopal, "Effects of customer services efficiency and market effectiveness on Dealer performance", *International Journal Services and Operations Management*, Vol. 5, No. 5, pp. 575–594, 2009.
- [27] S. Biondi, C. Armando, C. Guendalina, C. Roberta, and D. Francesca, "A New approach for assessing Dealership performance: An application for the automotive Industry", *International Journal of Engineering Business Management*, Vol. 5 No. 18, pp 1-8, 2013.
- [28] S. Teli, M. Jagtap, and N. Chanewar, "Cost of Quality Applications and Challenges: A Review", *Int. Journal of Scientific & Engineering Research*, Vol. 8 No. 3, pp.52-58, 2017.
- [29] S. Teli, V. Majali, and U. Bhushi, "Cost of Quality in Automotive Industry and Essence of Knowledge management", *JM International Journal of Management Research*, Vol.2 No.3, pp. 192-199, 2012.
- [30] S. Teli, V. Majali, and U. Bhushi, "Role of Cost of Quality in the Automotive Industry", *National Conf. Recent Trends in Mechanical Engineering*, Datta Meghe College of Engineering, Navi Mumbai, 2010.
- [31] S. Teli, V. Majali, U. Bhushi, and V. Surange, "Assessment of Cost of poor quality for Automobile Industry", *Int. Journal of Engineering Research and Applications*, Vol. 2 No. 6, PP.330-336, 2012.
- [32] S. Teli, V. Majali, U. Bhushi, and V. Surange, "Impact of poor quality cost in Automobile industry", *International Journal Engineering and technology*, Vol.4 No.1, pp 21-41, 2014.
- [33] S. Teli, V. Majali, U. Bhushi, L. Gaikwad, and V. Surange, "Cost of Poor Quality Analysis for Automobile Industry: A Case Study", *Institution of Engineers (India) Series C*, Vol. 94 No. 4, pp. 373–384, 2013.
- [34] S. Teli, V. Majali, and U. Bhushi, "Assessment of Dealer Quality Cost", *8th ISDSI International Conference*, Pune, India., 2014
- [35] S. Teli, V. Majali, U. Bhushi, L. Gaikwad, V. Surange, "Cost of Poor Quality Analysis for Automobile Industry: A Case Study", *Journal of The Institution of Engineers (India): Series C*, Vol.94(4), PP 373-384, 2013
- [36] V. Surange, S. Teli, D. Adak, S. Rane, "Effective Utilisation of Quality Cost Reducing Tools in Automobile Industry" *Int. J. of Advanced Tech. and Engg. Research*, Vol. 3(2), PP.44-53, 2013