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Impact of Quality Management Systems and After-sales Key Performance Indicators on Automotive Industry: A Literature Review

Omar Sabbagha[a,*], Mohd Nizam Ab Rahman[b], Wan Rosmanira Ismail[c], Wan Mohd Hirwani Wan Hussain[d]

[a,b]Department of Mechanical and Materials Engineering, Faculty of Engineering & Built Environment, Universiti Kebangsaan Malaysia
[c]School of Mathematical Sciences, Faculty of Science and Technology, Universiti Kebangsaan Malaysia
[d]Graduate School of Business, Universiti Kebangsaan Malaysia

Abstract

The automotive industry is experiencing a significant inclination in global market volumes accompanied with recent declination in profit margins and prolonged life span of a new car. Therefore, automakers have switched their attention to after sales business which proves to be a recession- resistance business, especially after the world financial crisis in 2008. Consequently the after sales business has become increasingly important and is one of the main revenue and customer loyalty contributors. This paper review focuses on the automotive after sales key performance indicators and their pertinent developed models in conjunction with considering the quality management systems which are implemented in automotive manufacturers. The purpose of this paper is to address the link between quality management system and after sales services in automotive industry. It is articulated in a manner to review the reported literature in automotive key performance indicators definition and importance. This is followed by a discussion on the contemporary quality management systems in automotive industry and its impact on customer satisfaction. Next, the author brings to focus the reported literature on warranty service and the relevant developed model. Finally, the paper concludes with the updated developments in the after sales business and the latest technologies utilized in this domain. The literature findings form the input to guide the author in his future research to bridge the gap between certain types of automotive quality managements systems and after sales key performance indicators.

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Keywords: automotive; quality management; after-sales service; customer satisfaction

* Corresponding author. Tel.: +6-019-255-4406 ; fax: +6-038-925-9659.
E-mail address: omarsabbagh.omar@gmail.com, omar_sabbagh@siswa.ukm.edu.my

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1. Introduction

The automotive industry forms a main pillar to the global economy, as it is one of the current profitable and feasible industries, especially after its recovery from the world financial crisis in 2008. Consequently, practitioners have forecasted the annual car sales to incline from 75 million in 2010 to 207 million and then 326 million in 2050 and 2100 respectively (Associates and Horizon, 2013). However, the auto sales business has been experiencing a profit margin shrinkage in line with the continuously prolonged product lifespan and this is motivating auto makers to adjust their focus to the after-sales business as it is becoming a remarkable profit source for both the manufacturers and the dealers (Aboltins and Rivza, 2014). For instance, the current after-sales market is up to five times larger than the new product market (Bundschuh and Dezvane, 2003), whilst the turnover of the original purchase can be tripled during the product lifespan by investing in after-sales services (Wise and Baumgartner, 1999).

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 optimise the utilization of the product in its middle and end life cycle (Patelli et al., 2004), besides, after sales services form an independent business module as the management has to fulfil 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

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 functioning (e.g. failed parts replacement, regular maintenance)
4- End of life product services: they deal with the regulations of disposing off the product (Legnani et al., 2013).

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 on customer satisfaction, which presents a feasible marketing channel (Alexander et al., 2002; 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). Hence, automotive companies have started to measure the value of their customers for the sake of increasing their profit (Hawkes, 2000; Kim et al., 2006; Verhoef and Donkers, 2001), while the customer value has been described as the difference between the benefits acquired from targeted customers for the sake of the enterprise and the burden costs in attracting and serving customers (Juehling et al., 2010; Kotler, 2000). As a result, 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)

This paper reports a review of literature to analyse the information on automotive after-sales key performance indicators (KPI) and the correlation with automotive quality management systems at the production phase to be matched with customer quality expectations. The relevant reported literature is limited in the manner in which it focuses only on the relation between one key performance indicator and the quality system or study two different after-sales key performance indicators with their relevant quality management system. Thus, the future research will scrutinize the impact of quality management systems on the whole elements of key performance indicators as one set to generalize the link and evaluate the performance of the after-sales department precisely.

2. Automotive after-sales Key Performance Indicators (KPIs)

Despite the limitation in reporting on automotive after-sales KPIs in literature, certain empirical researches have been conducted that scrutinize the automotive key performance paradigm and the related frameworks with the goal