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MARKET AND PERFORMANCE IMPLICATIONS OF FAST FIT SERVICE CONCEPTS IN AUTOMOTIVE MAINTENANCE SYSTEMS

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This paper presents research related to fast fit service concepts in the automotive maintenance at authorized services, as tool usefull that service provider increase competitiveness.
Implementation process of fast fit maintenance service concept in two authorized service networks is shown as well as the results of its empirical implementation, by using descriptive, comparative and statistical analysis method. Implementation of new maintenance service approach shows that its application leads to an improve of the after-sales work performances, relevantly affects the result of the whole business. In particular, in relation to the period when this service concept was not implemented new approach resulted in an increase in the number of total service visits. This research is limited to the automotive maintenance service industry especially as place for an improvement in authorized workshops. But some further studies could refine those measures and process of implementation for the applicability in some other service context.

Key words: automotive maintenance, authorized services, fast fit service concept, performance implications

INTRODUCTION

In conditions of global competition nowadays, every manufacturer tries to keep the relation with customer as much as it is possible. One way to achieve this is by constantly improving the quality of existing products and creating new, high-quality services [1,2,3]. Today the situation on the market is even more complex. It becomes also clear that good products and services are no longer sufficient for companies to survive in tough competitive environment but detecting what customer expect [4, 5] and meet that expectation. Automotive industry is still one of the largest industries nowadays. There is a tough competition and rules of the free market within it. The data shows that over 30% of all employees are involved in the production of motor vehicles or industries that are associated with it [6]. Car manufacturers, as well as manufacturers in any other industry, should continually seek opportunities to reduce costs and improve their products and services to sustain their activities and to survive [7]. On some markets they generate own sales and marketing entities, while on others they appoint company partners who are representing them on certain markets with obligation to respect and follow their strategy guidelines. Long ago, selling only cars, brought to dealers the biggest profit. However, producers, importers and dealers are quite often in order to stay competitive lowering profits on vehicles. Because of that fact in order to increase bussines effectivenes of their entities and saturate operational costs they are induced to create new profit generators, anticipated on the services for current and future needs of customers that will provide them to achieve targets. In this article emphasis is directed to other services in particular on the after-sales activities [8,9,10]. Figure 1 [11] shows one of the possible range of services that authorized dealers in addition to sales of new cars today usually offer. These are: used vehicles sale, sale of financial and other products, accessories sale, sale of body and paint services, sales of service packs, extension of warranty, tire sale as well as their storage, vehicle rental and their transportation services.

Figure 1: Example of dealers portfolio services - 'Range' of services of the authorized dealer

As can be seen from the Figure 1, one of the additional centers of business and service, is a Fast fit (FF) service concept. The effects of its implementation is presented in this paper. Some other approaches for service categorization schemes may also be found in literature [12].

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ELEMENTS OF FAST FIT - BASIS CONCEPTS

Manufacturers of parts, components and systems, sell their products to car manufacturers and to the free market (Automotive Aftermarket) [13,14]. Globalization secured and facilitated the spread of successful trading concepts that simultaneously build highly differentiated distribution channels [15,16]. FF service as a special service at the market for maintenance of motor vehicles has emerged as an idea of independent wholesale trade concerns in order to sell spare parts and do sales promotion through channels of partner entities. Reactively, car manufactures started with development of such concepts and at the end of last century, made FF services that are integrated into the after-sales service focusing on basic workshop operations, offering a partial maintenance, minor repairs and oil change. A fast fit service basically does simple workshop operations. Quality of service is important up to certain level but the speed and the perception of readily available, affordable service is more expected. The focus is on lower cost of the service which is more adequate to older vehicles with lower value for which this service is primarily intended. Later, concept revealed other customer nishes. This is based on lower operating costs which is also one of the main goals of such service [17]. In nowadays market competition it is good for any organizations to offer something new [18]. While the FF operations are being conducted on vehicle, the client is frequently waiting for the vehicle and operation might be organized without an appoitment. Regarding the implementation of the service concept with the authorized vehicle manufacturers services, the center of their attention is the achievement of quality for the affordable price. The concept of FF service has application in the preventive and in one part of corrective, maintenance. FF service goes into the profitable part of the maintenance especially in terms of spare parts sales, lubricating oil and other supplies. Maintenance model supports workshop efficiency increase and reducing downtime, which can increase sale of services. The complexity of the operations performed in this type of vehicle service is not hight, but it comes from the initial concept where it offers a quick and inexpensive way of regular maintenance. At the same time this maintenance is characterized with relatively small number of high frequency operations in corrective domain, with the current provision of spare parts that are in the service warehouse ready to be built in just before maintenance. Utilization of basic KPI [18] on maintenance and spare parts trade, can lead to incouraging conclusions in FF service affirmation. Table 1 presents the comparison of FF service concepts among the largest vehicle manufacturers. It shows variety of existing concepts. Important KPI [20] usable for measuring and evaluation of FF services are common in day to day workshop operations:

1. Number of passes, service visits (daily, weekly, monthly and yearly) - Generally, the starting key performance indicator (KPI) in the analysis of customer turnover is the number of repair orders within a special period. Repair order is a legally binding contractual document between the service provider and the client that approves the repairs or maintenance of vehicles at a specified price. Based on this, one can follow the trend of increase or decrease visits in a given period. Any repair order should include the following: customer information, vehicle information, details of the works and services and the like. This is important because, based on that, capacity of the fast fit service can be estimated. However, this indicator is not useful for getting the number of operations performed during each visit because the repair account may include only one work (e.g. maintenance work) or many activities (e.g. a maintenance operation, three repair operations, one operation in the warranty and the like). In particular this entities are focused in customer paid visits in service (CPUS) which represents all visits except internal and warranty passes; CPUS are so called „productive“ visits considering fact that other mentioned visits should be done in manner to cover productive costs without earning.
2. Spare parts/Labour per service visit sold – Quite often monitoring is extended to a ratio from Spare parts/Labour sold divided with number of passes ratio.
3. Waiting days (Number of days to start maintenance) to service - It is recognized that number of waiting days to appoint the car maintenance strongly influence customer satisfaction of client. Tracking of free occasion for maintenance in schedulling [21] is usually easilly available.

Table 1: Fast fit concepts examples with Customer promise overview

Main differences of fast fit service concepts	Renault Minute	VW Express	Mercedes	Fiat	Toyota Express
The duration (h)	No time commitments	No time commitments	1,5	No time commitments	1
Offered works	Not mentioned	Low maintenance	Regular services	Low maintenance	Regular services
Scheduling	No	No	No	No	Yes
The number of technicians	1	1	1	1	2

4. Percentage of Technical efficiency of worshop - Technical efficiency is ratio between the number of hours that have been sold and the number of hours that the technicians have worked. Routine maintenance operations that can be done faster and more efficiently, thanks to the technicians skills, and using an andvanced tehnicall equipment. Industrial European technical efficiency average is about 115% [22].
5. Customer satisfaction – Service activities are quite often improved based on customer instructions. In order to understand „voice of customer“, customer feedback is measured and statistically processed in order to define places of improvement. Rellation among customer satisfaction and worshop KPI can be explored [23].

The mail goal of research presented in this paper is to measure and present how fast fit service concept inflence on basic service KPI.

RESEARCH METHOD

Various maintenance concepts of motor vehicles in authorized services are aimed at obtaining a competitive advantage and efficiency increase in the provision of services while maintaining a desired quality of service. Consequently, the problem of this research was defined as the application of new concepts in maintenance of motor vehicles in authorized services. One with two technicians per work stall, and second that have one technician. By taking into account that there are different strategies in maintenance of motor vehicles, which determine the concepts of maintenance, this problem is confined to the specific subject of the research defined as fast fit service concept implementation. Therefore, this research was based on a systematic approach of the fast fit service concept implementation in the maintenance of motor vehicles in authorized services, which included the application of adequate scientific methods. The descriptive and comparative analysis method were used in the subject research. Descriptive methods were used in the scientific observation and description of phenomena, processes and activities in implementing the concept of fast fit services, as well as registration of all relevant data necessary for an objective determination of the subject research. Besides, this method gave a contribution to establishing the causal links and relationships to give the answer to fundamental question of this work. The used comparative analysis method has enabled the comparative study and also clarifying, establishing and displaying the similarities and differences between data in certain phases during the application of the two fast fit service concepts in order to come to the adequate knowledge level of its benefits. To some extent in this research was used and quantitative data so that it was necessary to apply the statistical method.

IMPLEMENTATION SPECIFICITY OF THE FAST FIT SERVICE PROJECT

Fast fit concepts that is analysed in this paper is implemented as follows. The specificity of fast fit automotive maintenance service concept implementation in Toyota brand authorized service (Table 1) has generally included:

- engaging two technicians at the workplace,
- exactly specified sequence of operations at certain levels of the vehicle lift position,
- special with the necessary equipment for each technician (system trolleys),
- well-organized appointment system to ensure utilization of this organized workplace with high productivity,
- measuring the efficiency of mechanics,
- system of quality control.

In Fiat brand authorized service (Table 1) includes:

- engaging one technician at the workplace,
- organized appointment system and ability to immidiatelly service vehicle of customer with out appoitment,
- system of quality control.

Basic indicators as starting points in the fast fit service implementation

To start with implementation procedures of the fast fit service, the first step was to understand the structure and types of visits of the existing services by analyzing this history (work orders, invoices or extract from the information system). Accurate insight into the types of maintenance that services currently do is produced based on history of repairs. Service that has a higher percentage of regular maintenance is more likely to have a sufficient number of works for the service. Figure 2 shows the distribution of work orders by type of business. The structure in this case shows almost 17% of orders with predictable preventive maintenance as well as another 10% prevention in combination with corrective maintenance. A note is that Fast fit best works are those that come from the field of preventative maintenance as the effectiveness of service providers can be best improved on them.

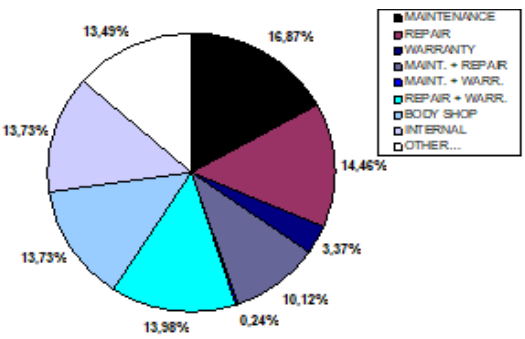


Figure 2: An example of the maintenance structure from one sample

Morning and afternoon congestion create a need for a fast but efficient receiving and handover of the vehicles, Figure 3. Many researchers explored and concluded that waiting time influences service satisfaction which has direct effect on customer loyalty, as stated above [23]. In case of automotive services such congestions may increases the number of employees at the reception and handover while time spent with the client is reduced, creating space for inadequate explanation of the problem as well as additional sales of service or work. So, more time is needed for each client and fewer employed receptionists in order to reduce costs.

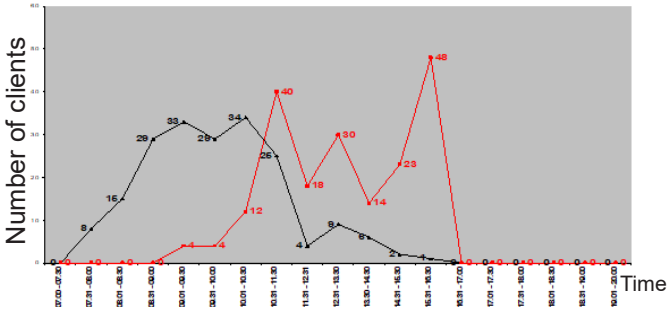


Figure 3: Unbalanced reception burden during the workday

Indicators Related to Customers

From the point of view that is focused on customers needs, first of all, the impact of scheduled clients who come to a service should be analyzed, Figure 4.The management and predictive planning of processes to create services is complex, because services can`t be produced in stock and customers are, just even partly, involved in their creation. The process of scheduling for services that are subject of this research comprises the series of pre-preparatory actions (save documents, preparation of parts and technicians), which affects the efficient execution of maintenance operations. From the aspect of FF service, the same customers might become key customers of the new service.

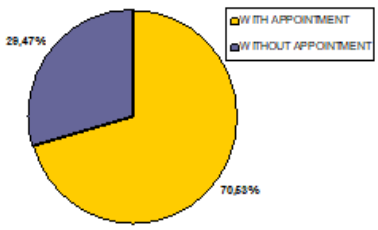


Figure 4: Indication of scheduled clients

Clients waiting for the vehicle while repairing are important, too. A higher percentage ensures easier implementation services. In this case, nearly one-half of clients are waiting for the vehicle to be repaired, Figure 5. They are potential customers for new vehicles as well as other services. Due to the huge funds being spent to attract dealership visits these customers visits should be seriously understood and used in right way. If we understand investments in adverts in order to bring customer at dealership it is clear how big waist is neglecting of clients who are waiting vehicles in service.

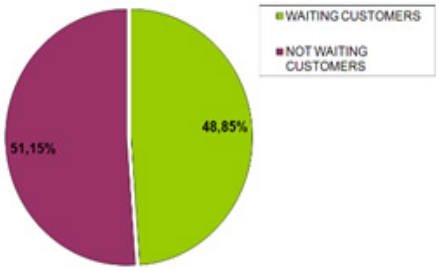


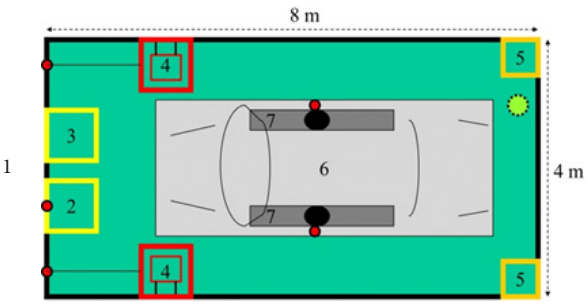
Figure 5: Percentage of clients waiting for the vehicle at dealership

Preconditions for workplace

It is important to understand exact level of an investment in an advance in order to define type of FF concept. Some concepts besides highly trained and synchronized technicians have a condition related to highly efficient technical equipment. Basic preconditions that workplace must have are:

- double-post lift (capacity of the lift depends on the type of a vehicle and its weight),
- minimum dimensions of the workplace (8mx4m - manufacturer's recommendations),
- connections for compressed air,
- manufacturing process procedures fully implemented.

In Figure 6 one can see an example how workplace with two technicians should look like. Air pressure installation is required.



1: Workbench
2: LLC* Drainer/Changer
3: Oil Drainer
4: System Trolle
5: Wheel stands 6: Car area 7: Lift
*Lubricant Liquid Coolant

Figure 6: Fast fit scheme of the workplace with two technicians

FF concept with one technician per workplace also analyzed in this paper comprise equipment for one person engaged in maintenance process.

Parallel results of two implemented fast fit service concepts

The projects of FF maintenance concept implementations were realized in certain period (6-12) months. Following is an overview indicators listed in point 2, which were monitored for the two described cases of their applications.

1. Number of service visits

Setting up FF service has led to an increase in visits to the service. Figure 7 shows an increase of paid visits over a period of one year from the introduction. Fast fit is not the only factor that affected this trend, but greatly contributed to it. It is difficult to measure unambiguously the contribution of the increase in dealership visits only from FF speed service, but it is evident. The simplest explanation is that the system scheduling and increased flow through the service enables better use of other jobs.

On the other hand, it is interesting to observe only the number of passes of the FF service in the process of implementation where noticeable increase per year is noted, which is shown in Figure 8 In the overall percentage, FF service passes have increased from less than 10% of paid visits to over 40%, Case A. Taking into account the burden of this workplace with high efficiency, free space and time for re-utilization of service capacity is created. Figure 9 reflects the increasing share of passes performed at a fast fit workplace in relation to other passes. In this way fast fit released workplaces for utilization of other service capacity. Implementation of FF service has led to a better utilization of the workshop capacity. The workplace itself at the FF service takes on greater number of passes and by good planning other workplaces are better used. The number of interventions per job has increased.

2. Spare parts/Labour per service visit sold

Better scheduling ensures that the receptionist has more time to establish better contact, to understand better the real needs and ensure the right dedication of the client.

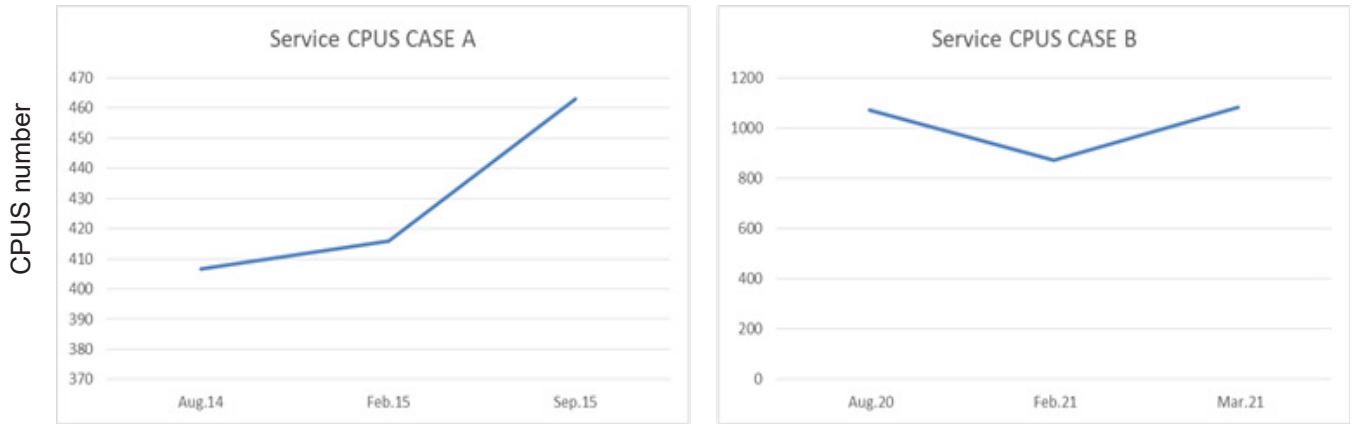


Figure 7: Increase in paid visits during August 2014– September 2015 Case A and June 2020-March 2021 Case B

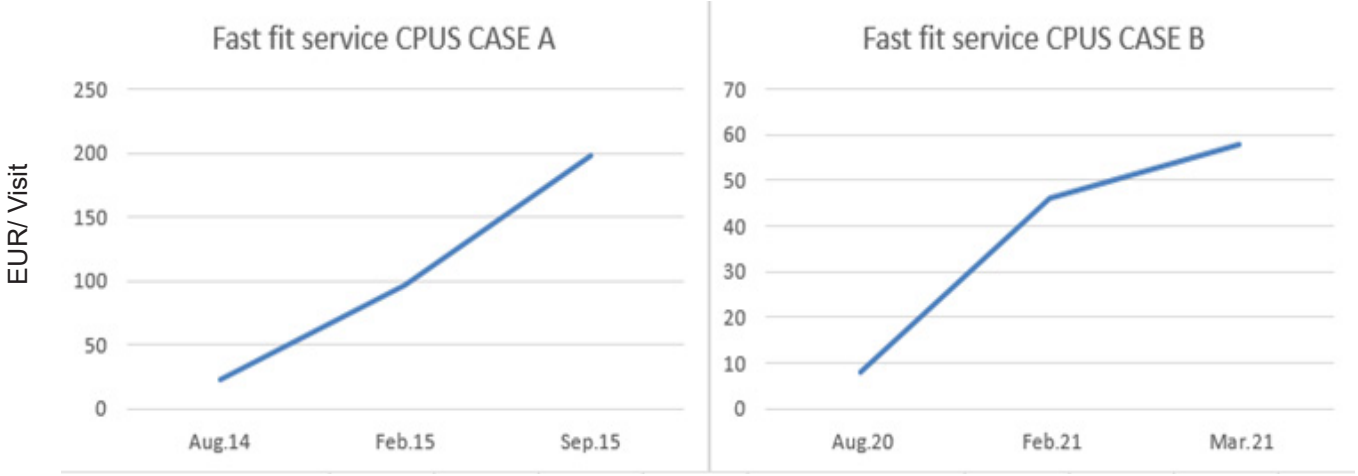


Figure 8: FF passes in the period of August 2014– September 2015 Case A and June 2020-March 2021 Case B

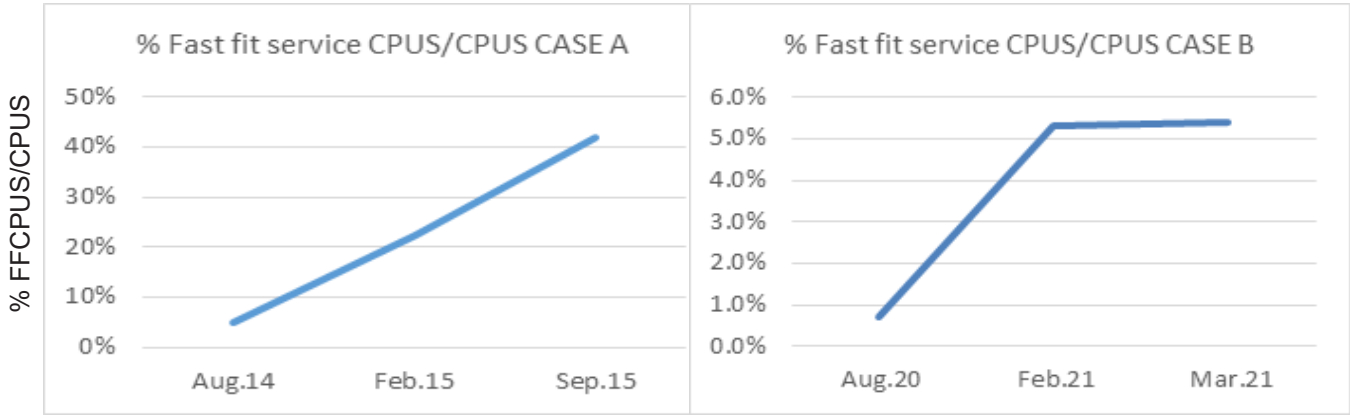


Figure 9: Increasing the number of fast fit service visits compared to the total number of paid visits during August 2014– September 2015 Case A and June 2020-March 2021 Case B

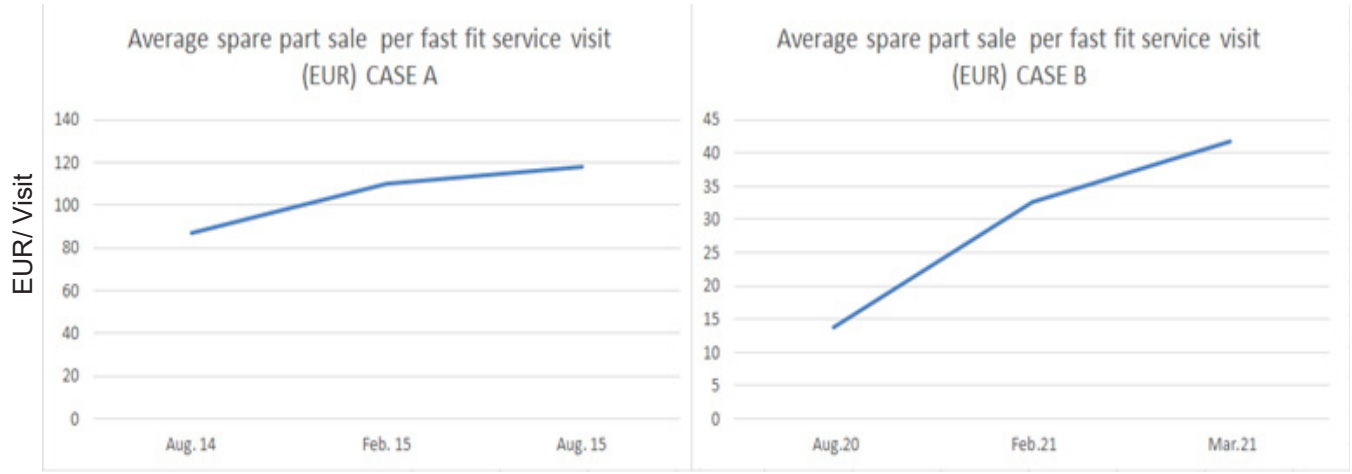


Figure 10: Spare parts sales in the period of August 2014– September 2015 Case A and June 2020-March 2021 Case B

In case of additonal faults discovered during maintenance, this allows detailed explanation of the additional work and customer approval which leads to better distribution of spare parts and accessories. Fast fit service concept insists on scheduling process at service in a periods when there is no usual morning and afternoon imbalances, Figure 3, and is common to all brands and maintenance concepts. Figure 10 shows the trend of increasing spare parts sales per paid visit. In additional, deep dive analysis of sold services of Fast fit focused on structure of the sold workforce and spare parts to clients is done. This relation should always be favorizing selling of product with better earnings. In our market low cost of labor often leads to focus on spare parts sale. Introduced services increased sales of parts sold per service visit during first year of fast fit service implementation process, Figure 11. Grey bars show the trend of spare parts invoiced per service visit while black line on same figure indicate the trend of spare parts/labor ratio per service.

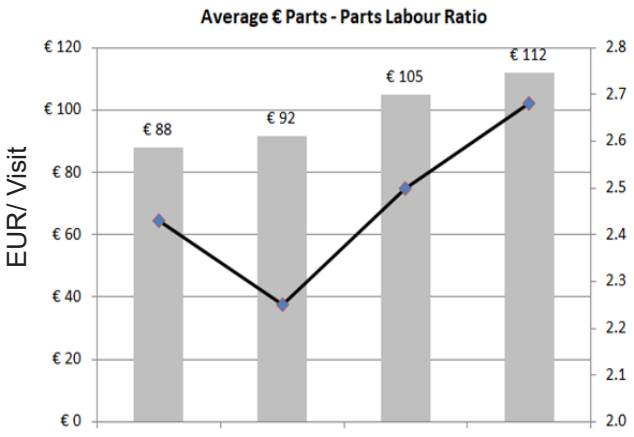


Figure 11: Spare parts sale per service visit

3. Waiting days to service

The consequence of detailed scheduling and better utilization of the workshop offers service to customers in the shortest possible time. The waiting time for service as an indicator of customers satisfaction is decreased by more than 5 days to less than 3 days, Case A.

CONCLUSIONS

In cases of FF implementations there is a noticeable trend of increase in service visits and of overall spare parts sales of the entire workshop, which created conditions for the sale of additional services related to corrective maintenance and warranty. Fast fit offers unique sales proposal and competetive advantage vs. conventional service. Customers have opportunity to choose between several service options with same cost. It has special purpose to be offered to entities of large fleets of vehicles. In case the client is waiting for a service, dealer sales team emoloyees is getting the opportunity to spend more time with him/her what can be place of improvement client-dealer relation. Opportunity should be used for better understanding of the client's needs and desires, to show empathy to the client and to satisfy his demands in a high percentage.The dealer's organization should be available and ready to meet new procedures and coordination among internal departments. In case of success dealer is strengthening own position in network and recogisability of the vehicle brand in the market. It is essential that only the dealer who is well managed and organized can successfully offer this service because the best managed and organized companies in the industry can be successful in this sort of customer vehicles service.

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