

Applying Management Instruments for Analyzing Service Activities Performance

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Abstract

The paper presents, beside several general considerations about the after sales network of a vehicle manufacturer, a methodology – as a management instrument – used to analyze the service activities performance. Based on a reliable set of key performance indicators, this instrument can be used to identify critical areas of service activity and to make comparisons between different service activity providers.

Key words: *after sales network, performance assessment, service activity, spare parts activity*

Introduction - General Considerations about After Sales Network

For every vehicle manufacturer its distribution network (points of sales & after sales) is an important asset as the network is in most of the cases the first and unique point of contact between customer and manufacturer.

In order to be authorized by a manufacturer, every point of sales or after sales has to respect a minimum set of qualitative standards decided by the manufacturer.

These standards give confidence to the customer and manufacturer that the qualitative processes and procedures are respected.

For the network these standards represent a high investment but they ensure that the level of service perceived by the customer is in line with manufacturer's expectations and gives value to the market value of service point.

It represents also an entry barrier for other potential competitors who want to enter to this business.

Each manufacturer wants to have a financially strong distribution network as this allows to make all necessary investments in order to improve the business and also allows a better "transition" in the moments when economic fluctuation affects business.

Manufacturers are working closer with their distribution networks in order to help them to increase their qualitative and financial performance.

Methodology Used to Analyze at 360° after Sales Activity

As described in a previous article the manufacturer of a commercial vehicle defined a methodology which highlights immediately which of the after sales points are not performing in line with manufacturer expectations on a particular market.

Once the poor performer was identified, a second phase - microanalysis is performed in order to define the causes of problems and to establish an action plan to solve them.

The after sales business of a Service is made by its capability to sell labor hours and spare parts.

The starting point of the microanalysis is a depth analysis of all business performance indicators which will indicate critical areas.

1. Service Activity

No matter its dimension a service activity analysis has to take into account the following areas: *business performance* and *efficiency indicators*.

Direct impact on these areas have: Service location, Service personnel training and expertise, Service capacity and layout, Service workflows (reception areas, repair area, delivery area etc.), Service tools and equipment.

Business Performance

○ Total Net Sales

Total Net Sales represent the total service revenues by selling labor hours. Labor hours can be sold directly to final user customers (Retail & Body parts), manufacturer (warranty repairs and repair contracts), Service key accounts (Special customers - special prices) and internally (repairs paid for customers by other departments, repairs for company vehicle) as well as subcontract repairs (repairs carried out by a 3rd party supplier but sold by the Service).

The Service objective must be to maximize the labor hours sold to final user customers because usually on this sale channel the maximum charging rate is applied.

○ Idle time cost

Idle time cost represents the cost of non activity when technicians did not work for whatever reason. The non productive time is calculated through the difference between number of hours attended and number of hours worked).

$$\text{Idle Time Cost} = \text{Number of Hours Attended} - \text{Number of Hours Worked} \quad (1)$$

The objective of the Service is to minimize the idle time. The cause of a high idle time might be due to low market share, Service overcapacity or due to non efficient Service internal process. Depending on the cause various actions must be implemented in order to recover the situation and minimize the idle time.

○ Service Gross Margin

This indicator shows the weight of direct productive costs onto recovered labor rate. It is calculated as follows:

$$\text{Service Gross Margin} = \text{Total Net Sales} - \text{Idle time cost} - \text{Cost of productive personnel} - \text{Cost of work provided by 3rd party supplier} \quad (2)$$

An average value of 50% and 70% is considered normal for a good performing Service. If the values are lower than this it means that cost labor is too high or labor recovery rate is too low.

○ **Contribution margin**

There are various cases when Services have also some indirect incomes - not related to the productive activity (incentives from various suppliers, sponsorships etc.). These incomes are considered Service Other Operating Income. It is calculated as follows:

$$\text{Contribution margin} = \text{Service Gross Margin} + \text{Other Operating Incomes} \quad (3)$$

○ **Service Fixed Expenses**

The Service fixed expenses are split in 2 categories:

1. **Personnel Costs** - which includes wages & salaries, travel expenses, training costs. Wages & salaries include all government contributions and associated costs valued on accrual basis and thus they include all overtime costs, paid holidays in lieu, leaving payments etc. Training costs can be related to technical & commercial courses and shows also if Service personnel are constantly updated.
2. **Other Service** expenses - which include Service's vehicle expenses, tools and equipments, Service consumables, cost of non-quality (repeated repairs), Service maintenance costs etc.

○ **Service Profit**

It is calculated as follows:

$$\text{Service Profit} = \text{Contribution Margin} - \text{Service Fixed Expenses} \quad (4)$$

Across Europe the overall Service profit varies from country to country. Statistically speaking, this is quite low (2-5%) in Southern Europe countries and around 12-15% in Northern Europe countries.

Service Efficiency Indicators

○ **Market share hours**

It is calculated as follows:

$$\text{Market share hours} = \frac{\text{total labor hours sold by the Service in its zone of responsibility}}{\text{potential of labor hours available in the area}} \quad (5)$$

The potential number of labor hours is calculated based on the vehicle running park divided by range and age. A low market share will have negative impact on idle time cost, and Service utilization.

○ **Gross margin**

1. Per Employee; it is calculated as follows:

$$\text{Gross margin per Employee} = \frac{\text{Service Gross Margin}}{\text{total number of employees (productive \& non productive personnel)}} \quad (6)$$

2. Per Productive Personnel; it is calculated as follows:

$$\text{Gross margin per Productive Personnel} = \frac{\text{Service Gross Margin}}{\text{total number of productive personnel}} \quad (7)$$

○ **Total Hours Sold**

This indicator shows total number of labor rate hours sold through each channel: Retail, Body shop, Manufacturer, Internal, subcontract repairs. The number of hours sold through each

channel together with total revenue on each channel indicates which the most profitable sales channel is.

- **Service utilization**

It is calculated as follows:

$$\text{Service utilization} = \text{total number of hours worked} / \text{total number of hours attended} \quad (8)$$

Services with a good utilization of the work force have an average utilization between 90-100%.

Values lower than this indicate that it is not enough work for the Service and the action plan to remediate this situation is to increase the market share in the area or to reduce the number of productive personnel.

- **Productive Efficiency (%)**

This indicator shows the ability of the Service to transform worked hours into productive hours, for customer repairs and maintenance or other service activities.

The overall productive efficiency % is calculated by the formula:

$$(H1+H2+H3) / HW \times 100\% \quad (9)$$

where:

H1 = Service Hours employed outside the Service for other departments or clients for non manufacturer servicing activity;

H2 = Productive Hours employed for standard repairs and maintenance invoiced to the Customer or to the manufacturer for warranty repairs;

H3 = Productive Own Work Hours employed in maintenance and repairs of vehicles that cannot be charged to an external customer;

HW = Worked Hours.

A well managed Service has an overall productive efficiency around 90-110%. If this value is lower than 90%, it indicates that the Service problems are related to poor qualifications of technicians or lack of special tools which allows fast repairs. If the productive efficiency value is higher than 110% it indicates that there may be a problem in the following areas:

- The way the worked hours are recorded;
- The repairs are carried out much faster than the times indicated by the manufacturer and various considerations about the quality of that repair should be made. This can be verified also by analyzing the number / costs of repeated repairs (non-quality).

- **Personnel Statistics**

This indicator takes into consideration the total number of productive personnel (technicians and apprentices) and non productive personnel (Service manager, receptionist, administration etc.).

Depending on the size of the Service a good ratio varies between 1 non productive to 2 productive on small Services (less than 10 technicians) and 1 non productive to 3 productive on bigger Services (bigger than 10 technicians).

2. Spare Parts Activity

The spare parts activity is mainly related with the Service activity as one of the main channels for selling spare parts is through the internal Service. Nevertheless there are some other channels to sell spare parts like: direct over the counter to the customer which will fit the parts

themselves or will use a “low cost” Service or selling to smaller Services in the area which cannot afford to hold a significant stock of spare parts. Similar with the Service analysis a spare parts business analysis must take into account the following areas: *business performance indicators* and *operational indicators*.

Business Performance Indicators

○ Total Net Sales

This indicator represents the total revenues from the activity of selling original and non original spare parts. As indicated above there are various channels for selling spare parts and the right balance in terms of channel mix must be maintained (e.g. even if the sales over the counter are usually the most profitable the percentage of sales through this channel should always be monitored in order to avoid possible impact on internal Service).

○ Performance bonus

Performance bonus represents the incentives received by the spare parts department upon achieving various performance targets.

○ Gross margin

This business performance indicator is calculated as follows:

$$\text{Gross margin} = \text{Total Net Sales} - \text{Cost of Goods Sold} + \text{Performance Bonus} \quad (10)$$

where Cost of Goods Sold represents total cost of purchasing the spare parts.

○ Contribution margin

Contribution margin as a business performance indicator is calculated as follows:

$$\text{Contribution margin} = \text{Gross Margin} - \text{Variable Commercial Expenses} \quad (11)$$

where Variable Commercial Expenses represent the cost generated by the packaging and transport of the parts.

○ Spare Parts Department fixed expenses

Spare Parts Department fixed expenses are divided into two categories:

1. **Personnel Costs** - include wages & salaries, travel expenses, training costs. Wages & salaries include all government contributions and associated costs valued on accrual basis and thus they include all overtime costs, paid holidays in lieu, leaving payments etc. Training costs can be related to technical & commercial courses and shows also if spare parts department personnel are constantly updated.
2. **Other** expenses - include expenses related to spare parts warehouse equipments (forklifts, packaging devices, balances etc.) and also the monthly accruals for spare parts scraping stock / obsolete stock.

○ Spare Parts Department profit

Business performance indicator calculated as follows:

$$\text{Spare Parts Department profit} = \text{Contribution Margin} - \text{Spare Parts Department fixed expenses} \quad (12)$$

Across Europe the overall spare parts profit varies from country to country from an average of 18% in Northern Europe countries up to 25-27% in Southern Europe Countries.

The competition within this business segment is very strong, as the biggest threats are coming from the biggest manufacturer of spare parts as they have started to create their own distribution networks or from the “low cost / low quality” spare parts produced especially in Asia.

Spare Parts Operational Indicators

o Market share spare parts

It is calculated as follows:

$$\text{Market share spare parts} = \frac{\text{total spare parts sold by the distributor in his area of responsibility}}{\text{potential of spare parts available in the area}} \quad (13)$$

The potential spare parts are calculated based on the vehicle running park divided by range and age. It is obvious that depending from country to country the average age of the running park varies as in some countries there are various governmental incentives to have more and more environmental friendly vehicles.

o Stock rotation

This shows the stock movement frequency, or the number of times the STOCK is sold in the financial year. The indicator is expressed with a decimal. It is calculated as follows:

$$\text{Stock rotation} = \frac{\text{Sum of Cost of Goods Sold for the months N to N-1}}{\text{Value of the stock at the N month}} \quad (14)$$

This indicator is very important as it shows to which extent the money immobilized into the spare parts stock is used efficiently.

An optimum balance has also to be maintained regarding this indicator as a very high value may indicate a good utilization of the capital but on the other side it indicates that just a certain type of parts are stocked (so called “fast moving”- filters, brake pads etc.) which will lead to the future customer’s satisfaction about the level of service received.

The optimum range for this indicator varies between 3-5. A value lower than three indicate that the mix of the stock is not optimum and the rotation of each parts category must be analyzed in depth and eventually the “dead” stock has to be scrapped.

Comparative Analysis between Same Size Services in Three Different European Countries

The following data (table 1, table 2) highlights the activities of two Services from Western Europe (Wshop 1 and Wshop 2) and one Service from Eastern Europe (Wshop 3).

Table 1. Key performance indicators for Service activity

Service KPI's (Key Performance Indicators)	Wshop 1	Wshop 2	Wshop 3
	Values in K€		
Labor rate Market Share	37%	35%	47%
Total Net Sales	1.419	739	431
Retail & Body Shop	826	457	358
Warranty	136	108	30
Internal	118	64	13
Other	-	1	20
Subcontract	339	109	-
Idle time cost	1	32	-

Table 1. (cont.)

Gross Margin	803	208	316
Contribution Margin	868	208	329
Of which other operating income	65	-	13
Departmental Fixed Expenses	474	221	223
Personnel Expenses	411	145	133
Other Expenses	64	76	90
Departmental profit	394	(13)	106
Gross margin per Employee	49	8	8
Gross margin per Productive personnel	64	10	11
Total Hours Sold	12481	23468	31242
Retail	8512	12768	24022
Body shop	-	2426	2867
Warranty	2556	4306	1924
Internal	-	43	958
Other Departments	-	-	1470
Total Technicians	9	20	26
Service	9	20	26
Body shop	-	-	-
Apprentices	1	1	2
Non productive personnel	4	6	13
Service Utilization %	95,2%	74,7%	74,2%
Productive Efficiency %	88,4%	66,7%	89,3%

Source: authors' research work using data provided by the manufacturers

Table 2. Key performance indicators for Spare parts activity

Spare Parts Department KPI's	Wshop 1	Wshop 2	Wshop 3
	Values in K€		
Market share parts	41%	36%	52%
Net Sales	1594	1989	1651
Retail / Counter	491	893	363
Trade	21	-	8
Service	739	933	1137
Subnet	109	163	9
Other Makes	234	-	134
Performance Bonus	34	-	33
Gross Margin	437	462	591
Manufacturer Parts	365	462	553
Other Makes	72	-	37
Contribution Margin	434	431	575
Departmental Fixed Expenses	167	149	95
Personnel Expenses	136	114	34
Other Expenses	31	35	61
Departmental Profit	267	362	480
Stock Rotation	6,5%	2,5%	3,7%

Source: authors' research work using data provided by the manufacturers

From the above mentioned figures we notice that the Wshop 3 (Eastern Europe) has the highest market share amongst the other 2 Services from Western Europe, both in terms of labor hours and spare parts. This indicates market characteristics favorable to the manufacturer due to the fact that the independent commercial vehicles after sales market is not yet developed enough. For sure the situation will change during the next year once the vehicle running park will increase and more players will be interested in entering this market segment.

Considerations regarding Performance of Service 1

Total Service net sales show that despite a lower number of technicians Wshop 1 is able to generate more revenue than the other two workshops. This fact is determined by the fact the average price of the sold labor hour is much higher than in the other two countries. The Services net sales distribution shows that despite the average biggest revenue, Wshop 1 generates only 58% of its revenue through end user retail channel, 9,5% through manufacturer channel, 8,3% internal- other departments and 23,89% selling work carried out by 3rd party suppliers. This distribution indicates that Wshop 1 is highly dependant on 3rd party suppliers because they outsource a big part of its activity and also indicate that it does not have a big “in house” competence. Using 3rd party suppliers can be efficient under certain circumstances (e.g. very specialized repairs) because it gives financial flexibility to the Services (does not have to invest in certain activities) and costs are under control in cases when there is no demand for such activities.

On medium and long terms this situation is a threat for Wshop 1 because being highly dependant of various subcontractors it is very difficult to assure a constant quality of the works carried out which will have a future negative impact on business.

The ratio between Gross Margin and Net Sales indicates that the cost of productive labor & the cost of subcontract activities represent 43,52% of total Service revenues, which is a good ratio indicating that productive costs are under control.

The departmental fixed expenses represent 33% of total Service income out of which the biggest part is due to costs of non productive personnel. The amount of these costs are significant but are fully justifiable taking into consideration the amount of work carried out by subcontractors - which must be coordinated and supervised by qualified personnel.

In terms of internal productive activity the indicators (Service utilization) shows that the Services is well dimensioned in terms of productive resources but the internal efficiency has to be improved.

Overall the Service performs well; it has a very good Departmental profit (27%). The only particular attention has to be paid to the amount of revenue generated by worked carried out by 3rd parties suppliers as any lack of very good coordination and constant quality will have a negative impact on business.

In terms of spare parts business the figures show that the Service is active on all possible channels of business, acting like a distributor for sub network, trading with 3rd parties and generating revenues also from “other makes” spare parts. Data show also that the “other make” parts activity is more profitable for Wshop 1 than the business with manufacturer parts.

The gross margin generated by parts activity is 27% which together with the stock rotation value (6,5%) indicate that the parts sold are especially the “fast moving” items (filters, belts, bulbs, brake pads etc.). The above mentioned items are the ones which generate more volumes in terms of sales but due to the fact that competition is very high with these items they do not generate a big profitability.

A particular attention has to be paid to the fact that even if for the business it is very good to have a big parts stock rotation this might have a negative impact on customer satisfaction because it means that stock consistency is weak.

Overall Wshop 1 has a good performance on areas, Service and spare parts. Particular attention has to be paid to the volume of work performed by 3rd party suppliers and to the mix of spare parts available on stock.

Considerations regarding Performance of Service 2

The Service 2 has a low market share both on labor rate and spare parts. This might indicate a particular situation of the commercial vehicle after sales market in this country or that might be management problems in this Service or a combination of both.

Service revenues distribution shows that 62% of income comes from final user customers & body parts repairs. The number of hours allotted to body parts repairs (nearly 10,2%) shows that this activity has a significant importance for the Service. Body parts repairs & parts trading represent a good business as the profitability rate of these activities is usually well above the average.

A higher percentage of repairs than in all other countries invoiced to the manufacturer indicates higher penetrations of Maintenance & Repairs Contracts. This means that in this market customers prefer to have a clear idea about the total costs of servicing the vehicle over its life time and this indicates a certain maturity of the customers / business / market.

Cost of non activity ("idle time") is very high and equates nearly 4,3% of total turnover of the Service. Service utilization index is very low - 74,7% - which indicates that at the moment the Service has an overcapacity in terms of productive resources.

The ratio between the service activity gross margin and Service Net Sales is only 28% which indicates also high productive costs.

Service productive efficiency is very low, (66,7%) which indicates that the productive personnel is not skilled enough or they do not have the necessary tools.

Departmental fixed expenses are generally in line with the average for this type of business which does not indicate a major problem in this area.

In the case of the Service2 the service activity generates loss and critical points are linked with over productive Service capacity, internal efficiency.

In terms of parts business activity we notice that over 40% of the business is made by selling the parts over the counter and implies that the customers will use other Services to fit them. This means that customers are not happy with the level of service received from the Service Department. It has to be noticed that this Service is not active in trading activities or "other makes" parts business.

The gross margin of spare parts activity is 23% and it can be considered an acceptable performance taking into consideration that the stock rotation is only 2,5%. This profitability is achieved mainly because in the case of sales over the counter, the profitability is quite high.

Overall the spare parts activity is performing well.

The main problems remain the ones of the Service Department where market share is low, productive costs are high, Service utilization is low and so is the Service efficiency. On short term the Service priority should be to reduce the productive overcapacity, to increase the training level of the productive personnel. Once these actions are performed very strong Service Marketing initiatives have to be initiated in order to attract more customers into service area.

At the same time the stock mix has to be analyzed in order to identify and reduce the “low rotation/dead stock”. This can also be done in conjunction with the Service Marketing initiative to attract new customers. This action will have a positive impact also on the balance sheet and on immobilized working capital.

Considerations regarding Performance of Service 3

The Wshop 3 has a high market share (47%) which represents a strong advantage for manufacturers in Eastern Europe markets. This advantage is generated by the fact that the market is not developed enough and there are not many independent players involved yet in commercial vehicles after sales market.

Even if the total number of productive personnel is the highest amongst the three Services we have realized that the Service income is the lowest. This is due to the fact that in Eastern Europe markets the cost of labor is still very low in comparison with Western Europe markets.

The Wshop 3 generates 83% of its incomes through retail channel which is a very good ratio. The retail channel usually allows Services to sell their labor hours on maximum rate - which allow Service to maximize its revenues. The amount of income received by performing works which are paid by the manufacturer (warranty & repair contracts) is only 6,9% which is low in comparison with western European average. Taking into consideration that the quality of the product is the same in both Western Europe markets and Eastern Europe markets it means that the difference is not generated by the warranty works carried out by Services but by the number of repair contracts. This is again a characteristic of Eastern Europe markets where the customers still do not have the business maturity to try to secure their fixed costs over a 3-5 years period of time through repairing contracts. For the time being this situation is beneficial for the Service because it sells its labor hours through retail channel which secures them a higher profitability. During the next year, we anticipate that the transport business will become more mature and the customers will be interested to buy repair contracts in order to secure their costs for the lifetime of their vehicles.

The fact that the Service does not have any revenues by selling work carried out on their behalf by 3rd parties suppliers indicates that because of low labor costs, Eastern European Services prefer to do all type of work “in house”. Again this fact is beneficial for Services but we anticipate that within next year the labor costs will increase and the Services will be forced to outsource part of their activities. The ratio between Service Gross Margin and Service Net Sales is about 76,9% which indicates that the cost of productive personnel is very low. On a short term from a Service perspective this is a good result, but in the next years the costs of productive personnel will increase as these jobs start to be quite specialized -because the products become more and more Hi-Tech.

Service Department fixed expenses represent around 51% of total Service Incomes which is a high percentage. Fixed costs structure shows that 59% of it is generated by the costs of non productive personnel and 41% of various Service expenses. Personnel costs indicate significant discrepancies between the costs of productive personnel and costs of non productive personnel. For the reasons explained above WE anticipate that this gap will reduce within next years.

The fact that the overall workshop utilization and productive efficiency are low indicates that there is an overcapacity in terms of productive personnel and that the level of training / personnel experience has to be improved.

The spare parts market share is the highest amongst all three Services analyzed. This situation is a combination of good performance of our Service and a low competition in the segment of original spare parts distribution.

Spare parts selling channels indicate that the biggest distribution channel is the Service Department which is good because it secures a profitable business for the Service. The fact that 8% of parts revenues are generated by trading “Other makes” spare parts shows management decision to look for new business opportunities, out of the master agreement with the manufacturer.

Spare parts gross margin is about 35,7% on total parts revenue which is a very good ratio. The main driver of this result is the high percentage of spare parts sold through own Service.

Overall parts department fixed expenses are low but a particular attention has to be paid to “Other expenses”. These expenses include packaging costs, maintenance of various equipments and accruals for spare parts scrap. We do believe that the accruals for spare parts scrap are too high and a closer look will indicate that the accruals have to be reduced.

Stock rotation is good, allowing a good proportion between parts available immediately on the shelves and financial turnover. As a conclusion the Wshop 3 performs well and the management takes the opportunity to exploit the current market situation. Even if the overall actual results are good in Service area a particular attention has to be paid immediately to the increase of workshop utilization and productive efficiency. Because the actual market share is already high we do not think that the workshop will be able to attract more customers in order to increase its workforce utilization. In this case the workshop will have to select its best productive personnel and dispose the others. Even if this measure involves high costs due to redundancy packages, on a medium term it will allow the workshop to increase its utilization and productive efficiency which will lead to better profitability.

For the next years we foresee an increase of the Service Department productive costs and a shift of nearly 7-10% of income revenues from retail channel to manufacturer channel. These two factors will have a negative impact on Service & Parts Department profitability and the management must look for alternative solutions to compensate this loss.

In terms of spare parts business the years to come will bring a higher competition regarding the original and non original parts distribution which will affect Service margins. The Service must use the temporal advantage in order to build a distribution channel for sub network and secure this new business channel.

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Aplicarea instrumentelor de management pentru analiza performanței activităților de service

Rezumat

Acest articol prezintă, în afara unor considerații generale despre rețeaua post-vânzare a unui producător de vehicule, o metodologie – ca instrument managerial – folosită pentru a analiza performanța activităților de service. Bazându-se pe un set esențial de indicatori-cheie ai performanței, acest instrument poate fi utilizat pentru a identifica ariile critice ale activității de service, dar și pentru a efectua comparații între diferiți furnizori de asemenea servicii.