firm automobile service, dealer-service network, information-logistic system

Irina MAKAROVA, Rifat KHABIBULLIN, Polina BUYVOL, Eduard BELYAEV*
Kama State Academy of Engineering and Economic
Mira prosp., 68/19, 423810, Naberezhnye Chelny, Russian Federation
Corresponding author. E-mail: bomund@mail.ru

CONCEPT OF THE DEALER-SERVICE NETWORK MANAGEMENT ON THE SYSTEM APPROACH BASIS

Summary. In article the method of improvement of automobile service quality within the limits of a dealer-service network limits, by building of information-logistical system and feedback mechanism adjustment is considered. As operating influence application of the discounts` system calculated on the basis of forward orderings on spare parts arriving from the service centers is offered.

КОНЦЕПЦИЯ УПРАВЛЕНИЯ ДИЛЕРСКОЙ-СЕРВИСНОЙ СЕТЬЮ НА ОСНОВЕ СИСТЕМНОГО ПОДХОДА

Аннотация. В статье рассмотрен метод повышения качества сервисного обслуживания автомобильной техники в рамках дилерско-сервисной сети, путем построения информационно-логистической системы и налаживания механизма обратной связи. В качестве управляющего воздействия предлагается применение системы скидок, рассчитанных на основе поступающих от сервисных центров предварительных заявок на запасные части.

1. INTRODUCTION

The dynamical development of the automobile branch which have caused growth of competition in the service market, and also problems which are required to be solved for achievement of the purpose put within the limits of development Strategy of automobile industry of the Russian Federation for the period till 2020 [1] demand to search ways of the enterprises competitiveness and functioning efficiency improvement from automobile technics manufacturers. These processes are connected with updating and extension of cars lineup that leads to growth of spare parts nomenclature, and also numbers of physical operations in maintenance and distribution systems.

At the same time struggle for the client in sales and service market leads to increase of requirements to level and quality of service organisation and complication of manufacture planning processes.

One of the major factors providing competitive advantage is creating effective and customer-oriented firm automobile service system providing bringing service to a consumer and organisation of aftermarket service during all period of automobile operation [2].

2. INFORMATION-LOGISTICAL SYSTEM

Considerable reserves of firm automobile service system competitiveness and functioning stability improvement are covered in perfection of management both a dealer-service network (DSN) as a whole, and activity of each network enterprise - the dealer-service center (DSC). The organisation of communication process with a consumer and the establishment of a feedback with the manufacturer is also included into problems of DSN functioning.

"A feedback principle" realisation efficiency can be provided at the expense of optimisation of industrial system, support system and firm service system interaction that is reached by construction of the uniform information field realised in the form of information-logistical system (ILS).

The key principle of DSN work is customer-oriented principle which should be supported by DSN logistical possibilities, i.e. DSN should have mechanisms and technologies of tracing production streams, and also their optimisation and an operational administration.

System approach consists in complex consideration of interaction of all participants of spare parts "planning-order-manufacture-delivery" cycle of spare parts by means of information and material streams optimisation. Subsystems of created ILS are clients, DSN, control center of DSN, firm-producer, and it is possible to divide streams proceeding in system on operating (information), providing (information and material) and financial.

Management purpose of such system is satisfaction of client demands at service that is connected with necessity of timely and qualitative maintenance DSN by spare parts organisation. Efficient control of supply system is realised by creation of the feedback allowing to correct operating influence timely.

The feedback is a basis of system self-regulation and development, it's adaptation to changing external conditions. The feedback mechanism is realised through transfer of information streams from one element ILS to another. At the moment of time t (1) service centers on the basis of a design procedure of warehouse stocks replenishment volume make forward orderings. The given procedure is developed by experts of control center of DSN. Aggregating received from subjects of DSN demands, control centre, depending on specified in the given demand manufacturer of the spare parts directs the manufacture order demanded quantity of spare parts, or the demand to foreign suppliers on acquisition of necessary quantity of spare parts. The streams of the information participating in given process, will be operating as a basis of manufacture loading planning and order formation to foreign suppliers.

At the moment of time t (2) on the basis of clients references in SC orders are formed which are transferred in control centre and further to the manufacturer in the form of the dispatch order operatively. Frequently the list of spare parts in SC order cannot be completely by spare parts available in a warehouse. The given circumstance is connected with discrepancy of spare parts nomenclature in the forward ordering and in the order. For example, if any of clients in the forward ordering has specified one quantity of spare parts of a certain nomenclature position, and later in the order has declared the given position in other quantity then the share of the spare parts prepared for dispatching to other client will go on closing of this demand. Thus, both orders will not be closed completely, that can lead to loss of clients. At the given stage it is necessary to speak about providing information streams by means of which client reference in SC transformed to spare parts dispatch order to firm-producer or the foreign supplier.

In parallel with providing information streams in the form of spare parts dispatch order, financial streams are formed. Operating and providing information streams, and also financial streams transferred from the client to the manufacturer, urged to operate material streams in the form of spare parts from the manufacturer to the client (fig. 1).

Analyzing the situation which has developed in the field of planning and managements by dispatch of spare parts, it is possible to draw conclusion that incorrect forward orderings are a consequence of discrepancies in requirements forecasting that often leads to big losses connected with storage of spare parts surpluses in SC warehouse or with idle times of clients automobiles owing to absence of necessary spare parts. In many cases of forecast discrepancy is a consequence of SC refusal of use of the procedure developed by control centres.
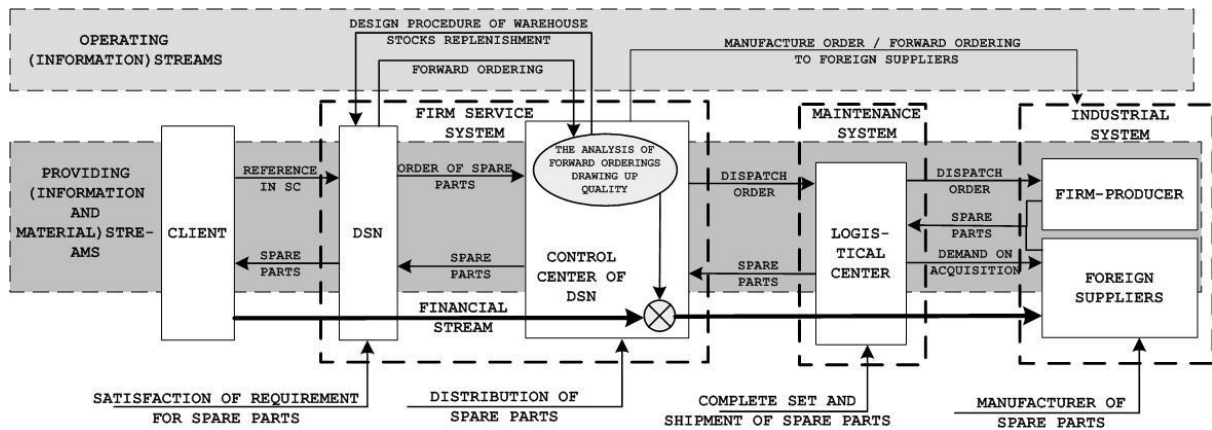
Fig. 1. Information-logistical system
Рис. 1. Информационно-логистическая система

In such situation problem of working out of a control facility the mechanism of drawing up of the forward ordering by SC experts become extremely actual, that facility will allow to raise controllability of formation process of forward orderings and quality of supply process as a whole.

3. CALCULATION OF DISCOUNT SIZE

For increasing motivation to improvement of forward orderings quality and for the purpose of operating influence formation by authors it is offered by authors to use the size of the discount calculated on the basis of the information about quality of forward orderings drawn up by DSN subjects.

As it was specified earlier, the qualitative and quantitative structure of shipped spare parts party depends on forward orderings quality. The algorithm of forward orderings calculation is made by control center DSN and enters into the list of engineering specifications which DSC experts should use [4].

The analysis of forward orderings drawing up quality is carried out in two stages. In the first stage the percent of the nomenclature positions deviations in the forward ordering and the order pays off, i.e. the qualitative structure of the demand is analyzed. If the received percent doesn't exceed some admissible limit A, established by control center DSN the discount at a rate of X % is charged to SC. In the second stage the quantitative structure of the demand is analyzed. For each nomenclature position the quantitative deviation is calculated and then the average size of deviations for all nomenclature pays off. In the event that the average deviation doesn't exceed set admissible limit B, the discount at a rate of Y % is charged to SC. Further the general size of discount Z% (where Z=X+Y) is calculated. If SC demand doesn't meet requirements neither on qualitative, nor on quantitative structure SC loses a discount that leads to considerable loss of profit.

The forward orderings and discount definition analysis algorithm is presented on fig. 2.

For today efficiency of similar problems decision is provided with use of modern information technology. Introduction of the forward orderings quality analysis module allows to solve a problem of production management and deliveries of spare parts. Monitoring of the statistical information processes and the analysis allows to develop the recommendations necessary for a substantiation and acceptance of administrative decisions. Statistical data processing gives the chance to calculate the size of a discount for separately taken DSC. Improvement of forward orderings quality is reached by constant monitoring of forward orderings quality and use of discounts system. In this case of discounts charge process becomes transparent and clear for DSC experts that motivates them on improvement of made demands quality.
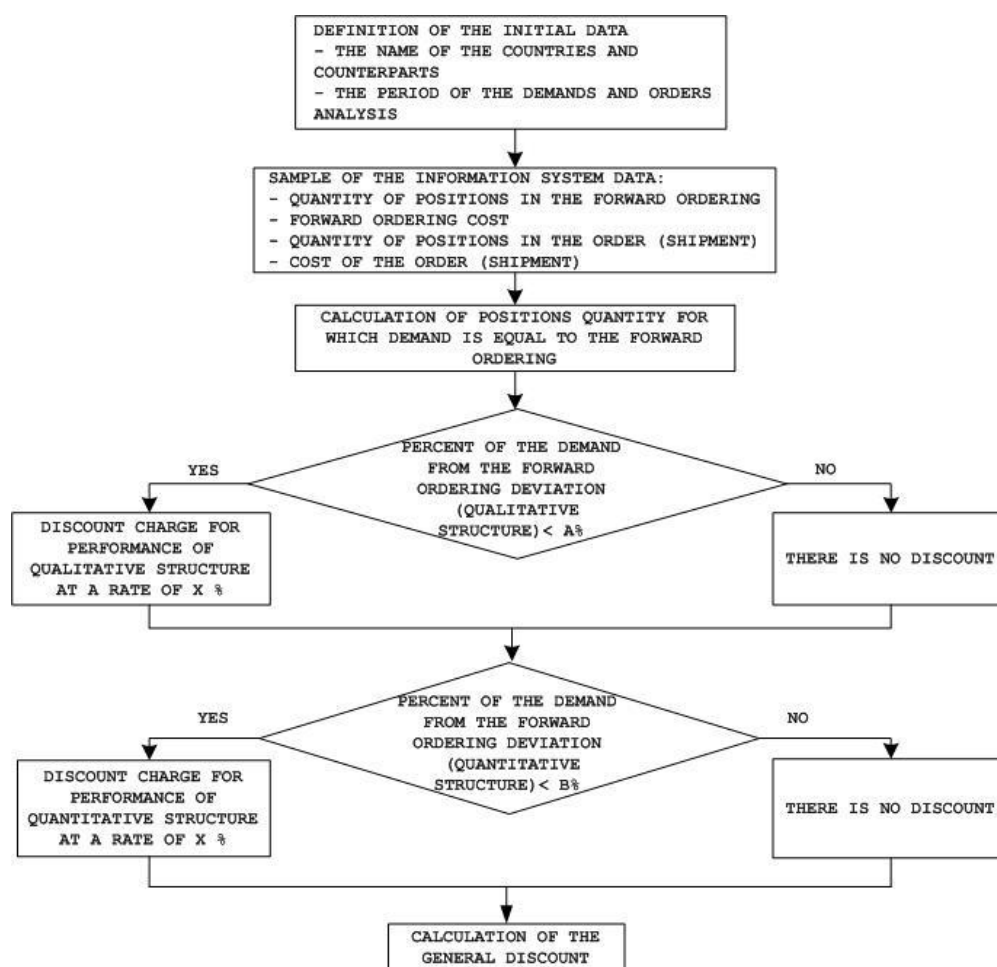
Fig. 2. The forward orderings and discount definition analysis algorithm
Рис. 2. Алгоритм анализа предварительных заявок и определения скидки

For the decision of forward orderings quality automated analysis and discounts calculation for DSC problem, in the general information system of OJSC "KAMAZ" has been developed module «The inquiry-report on performance of demands», the realizing algorithm presented on fig. 3.

Necessary for the report generation parameters got out in the presented figure 3 main form. For the export demands quality analysis in the field "Organization" gets out the organization working with customers. The period of the analysis further is underlined (month). There is a possibility as analyzed to choose the period from the beginning of year about the chosen month.

In the following field the production realization direction found then – division for which the report on performance of demands is formed.

Representing an operative report of the data on declared, ordered and shipped positions of spare parts in a sectional view of the countries and counterparts report is generated on the basis of the filled parameters. The kind of the given report is presented in figure 4.

Apparently from the presented report, the data of columns 11 and 12 serves as the base for appointment of discounts and definition of their size. The calculated size of discounts is skidded accordingly in columns 13 and 14.

Advantage of the module is well-founded calculation of compensation SC in the form of the discounts, depending on quality of preliminary submitted demands that realizes feedback mechanism. The problem of the given module perfection by addition of the initial information in such parameter, as the account of mass defects occurrence, and also updating of orders on the basis of the given information dares solve authors today. As mass defects of automobile technics have casual

and not predicted character, the made of SC on the basis of the recommended technique forward orderings, will be incorrect.

Fig. 3. «The inquiry-report on performance of demands» main form
Рис. 3. Главная форма модуля «Справка-отчет о выполнении заявок»

Справка - отчет о выполнении заявок за Ноябрь 2010 года

Направление реализации: Экспорт

№ п/п	Наименование контрагента	Кол-во поз. в заявке	Сумма заявки (тыс.руб.)	Кол-во поз. в заказе	Сумма заказа (тыс.руб.)	Кол-во поз. отгруж.	Сумма отгружено (тыс.руб)	Заявка = Заказу		% выполнения		% скидок		
								От кол-ва	От суммы	От кол-ва	От суммы	за выбор заявки от кол-ва	за выбор заявки от суммы	Итого общ.% скидок
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	ИТОГО	7484	126088,21	6912	113050,37	4487	80053,08	1910	37066,13	33,14	55,53	9	7	16
	Азербайджан	275	7858,01			233	7594,14							
1	80076 Интершин	275	7858,01			233	7594,14							
	Беларусь	220	5621,02	220	5621,02	281	8963,99	58	4335,25	19,08	79,88			
1	11655 Валмакс	152	5427,11	152	5427,11	281	8963,99	58	4335,25	38,16	79,88			
2	80052 ВТК КАМАЗавто	68	193,9	68	193,9									
	Казахстан	1622	37210,4	1622	37210,4	2485	54626,42	1067	27353,04	62,38	72,29	4	4	8
1	12478 Автосельмаш	200	3825,55	200	3825,55	274	6174,77	134	3122,49	67	81,62			
2	12691 Гавань-Авто	280	3855,63	280	3855,63	335	3680,32	100	1155,7	35,71	29,97		1	1
3	12709 Павлодаршинтрейд	73	504,1	73	504,1	233	3043,59	62	378,13	84,93	75,01	1		1
4	13149 ТОО КАМАВТО	36	1622,35	36	1622,35	186	5680,19	17	1615,73	47,22	99,59		1	1
5	66644 Уральский а/ц	285	4971,74	285	4971,74	316	4677,74	248	3871,41	87,02	77,87	1		1
6	80061 Бек-Транс	164	3583,59	164	3583,59	142	2950,89	132	2850,13	80,49	79,53	1		1

Fig. 4. The inquiry-report on performance of demands
Рис. 4. Справка-отчет о выполнении заявок

4. CONCLUSION

The developed module as the tool of activity SC on drawing up demands updating is used now by experts of the closed joint-stock company "The foreign trade company "KAMAZ". Besides it, the discounts SC for a year size dynamics can be used at the spent by firm-producer annual certification of subjects DSN.

References

1. *Substantive provisions of the Russian Federation motor industry development strategy to 2020*. The Ministry of the Industry and Trade of the Russian Federation. M: 2010, p. 76, http://www.minprom.gov.ru/press/release/showNewsIssue?url=activity/auto/news/189.   Reference date – 11.03.2010.
2. Mirotin L.B., Tashbaev Y.E.: *Logistics: customer service.* M: INFRA-M, 2002, p. 190.
3. Mirotin L.B.: *Management of automobile service*. Publishing house "Examination", 2004, p. 320.
4. Enterprise standard of OJSC "KAMAZ" 37.104.43.05-2010 «*Procedure of the order reception and industrial planning*», 2010, p. 71.