JUSTIFICATION OF EFFECTIVENESS OF THE CRM SYSTEM

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ABSTRACT

The article describes an approach of the method to study effectiveness of modern system of relationships with customers based on information technologies. In addition direct economic effects, indirect effects and effects of reducing risks in the performance of transport and logistics services are considered. Creating such a system in the holding Russian Railways is intended to increase the competitiveness of rail transport, to attract new customers, to increase revenue and reduce unproductive losses, which arise due to unsatisfactory performance referring to fulfillment of contractual obligations in the field of carriage of goods.

Keywords: railway, CRM, holding company, service quality, transportation market, customer focus, logistics, efficiency, system of customer relationship, information technologies.

Background. *Restructuring of Russian Railways holding company followed by segregation of transport and logistics activities into a special business unit demonstrates the need for formation of customer-focused relationship with consumers of services in the field of freight traffic. Promotion of customer satisfaction, sales of transport and logistics services, commercial activities of the business unit require an effective corporate information system. The effectiveness of information in this case is determined by its content and quality of implementation or «correctness» of retransmitting structures and processes.*

Objective. *The objective of the authors is to consider effectiveness of the CRM system.*

Methods. *The authors use general scientific methods, comparative analysis, evaluation approach, statistics, modeling.*

Results. *When implementing CRM (customer relationship management) system two concepts of business model organization can be used: a) use of information support of interaction while maintaining existing business relationship; b) building relationship system based on information technologies (transformation of the current relationship model).*

In the first case, while maintaining the model of relationship with customers CRM efficiency is defined as effectiveness of automation of existing processes with available personnel. If existing quality of the business model suits holding managers, such an approach is quite empowered. Then we can talk about effects of its introduction such as growth of staff productivity, increase in speed of service, exception of losses and duplication of information. Here one can proceed with estimation of the return on the cost of purchasing the applied or development of its own CRM-system and its implementation in accordance with ongoing processes. That is, introducing CRM as a software product, proceeding with of processes on its basis holding companies receive direct effects of costs reduction and certain indirect effects obtained with the support of the existing business model.

In a complex project (transformation of the existing model of relations) of implementation of customer-focused strategies and establishment of sales system it is possible to get a significantly larger number of effects: rotation of new, more loyal customers, cross-sales of products and services, increase in the share of the most profitable customers, accelerated entry of new products into a market, synergistic effects in the support of customer contacts.

The theory proposes to allocate three groups of effects of innovative products and technologies, quite useful to evaluate the effectiveness of CRM: direct economic effects, indirect economic effects and risk reduction effects.

Direct economic effects can be attributed to all effects which ensure a direct impact on income and expenses of Russian Railways holding company.

Now in the holding and its transport and logistics business unit there is no single database of customers, so the ability of segmentation according to various indicators, including dynamic, is restricted. Promotion of products is carried out without an analysis of the interaction efficiency in the value chain from basic transportation service to integrated transport services. Staff of the centre for corporate transport service has tools of interaction with customers in issuing shipping documents and in transportation accountancy. In the transport and logistics business unit a single sales forecasting environment, consolidation of customer-focused management decisions based on performance indicators is are in the process of being developed.

In general, the direct effect of creation of information space of interaction with customers is determined by two components – income growth (ΔI) and cost reduction (ΔC):

$$E = \Delta I + \Delta C. \qquad (1)$$

The direct effect of creating a system of relationship with customers is ensured with the growth of sales and earnings due to:

- *segmentation by defining indicators and offers of greater customer value, attracting new, more profitable and loyal customers –* $\Delta \mathrm{I}_i^{\mathrm{segm}}$ *;*
- *cross-sales of transport products and services –* $\Delta \mathrm{I}_i^{\mathrm{cr-sal}}$ *;*
- *development of effective channels of sales of transport services, reduction of unit costs per unit cost of operation of the channel –* $\Delta \mathrm{I}_i^{\mathrm{chan}}$ *;*
- *improving the quality of transport services and development of customer-oriented organizational structure –* $\Delta \mathrm{I}_i^{\mathrm{quality}}$ *.*

The above variables of efficiency affect increase in income in the hierarchical model of the 1st level; increase in revenues for the aggregated products i = 1–n is:

$$\Delta \mathrm{I} = \sum_{i=1}^{n} (\Delta \mathrm{I}_i^{\mathrm{ag}}\ \Delta \mathrm{I}_i^{\mathrm{segm}} + \Delta \mathrm{I}_i^{\mathrm{cr-sal}} + \Delta \mathrm{I}_i^{\mathrm{chan}} + \Delta \mathrm{I}_i^{\mathrm{quality}}). \qquad (2)$$

In turn, each of efficiency variables in the model (2) is defined by a set of parameters that form the additive model of the 2nd level:

Table 1

Holding's income growth due to increase in customer satisfaction

Quality indicators	Significance	Satisfaction index	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Growth of indicators (except for indicators «safety» and «urgency of delivery»)				1,025	1,025	1,025	1,025	1,015	1,015	1,015	1,015	1,015
Growth of «safety»				1,01	1,01	1,01	1,01	1,005	1,005	1,005	1,005	1,005
Growth of «urgency of delivery»				1,02	1,02	1,02	1,02	1,01	1,01	1,01	1,01	1,01
Urgency of delivery	0,2	0,46	0,49	0,500	0,510	0,520	0,530	0,536	0,541	0,546	0,552	0,557
Safety	0,17	0,84	0,88	0,889	0,898	0,907	0,916	0,920	0,925	0,930	0,934	0,939
Completeness of demand satisfaction	0,23	0,73	0,75	0,769	0,788	0,808	0,828	0,840	0,853	0,866	0,879	0,892
Actual rhythm	0,29	0,53	0,55	0,564	0,578	0,592	0,607	0,616	0,625	0,635	0,644	0,654
Complexity	0,11	0,58	0,6	0,615	0,630	0,646	0,662	0,672	0,682	0,693	0,703	0,713
Overall indicator		0,6202	0,645	0,659	0,673	0,687	0,701	0,709	0,718	0,727	0,735	0,744
Income receipts due to satisfaction growth				1093	1135	1177	1218	726	746	767	787	808

$$\Delta I_i^{segm} = \Delta I_i^{focus} + \Delta I_i^{prem} + \Delta I_i^{contr}, \quad (3)$$

where:

ΔI_i^{focus} *–additional income of the holding through selection of more profitable customers taking into account infrastructure limitations;*

ΔI_i^{prem} *– additional income due to offering premium levels of service based on customer value and increase in the life cycle of his interaction with the holding;*

ΔI_i^{contr} *– additional income due to offering solvent customers additional contractual services.*

Rising income in the organization of cross-sales (customer's transfer between entities of the transport and logistics business unit) – ΔI_i^{cr-sal} *– is provided by increasing the value of the basic service, by offers of an integrated transport and logistics service, and in some cases by full synchronization with operating activities of manufacturers.*

Rising income through effective sales channels ΔI_i^{chan} *is estimated by two-parameter model of the 2nd level:*

$$\Delta I_i^{chan} = \Delta I_i^{val-c} + \Delta I_i^{m-c}. \quad (4)$$

where:

ΔI_i^{val-c} *– income increase by selecting the optimal channel by value criterion of specific channel value per unit costs for promotion of the transport product;*

ΔI_i^{m-c} *– the income increase by increasing motivation of the participants of the channel from corporate sources;*

$\Delta I_i^{quality}$ *– the income increase with an increase in the quality of transport service.*

Based on studies by Russian scientists [1–3], as well as on our own study, we consider it appropriate to assess the quality of transport service through relative values of the following indicators:

- *Speed or time of delivery of goods;*
- *Safety of goods transported;*
- *Completeness of satisfaction of demand for transportation;*
- *Regularity and rhythm of delivery of goods;*
- *Complexity of transport service;*
- *Transport availability in the area;*
- *Transport accessibility for users;*
- *Traffic safety;*
- *Environmentally friendly transport.*

In the study of Yu. I. Sokolov and I. M. Lavrov [3, 4] analysis of data obtained during the implementation of the project «Quality Index» shows that on rail transport quality of transport services, although it has a tendency to grow, is still not high enough. The change in demand is affected by the overall comprehensive indicator of the quality of transport service of cargo owners produced by values of private indices.

In the course of the research in the calculation values of five major quality indicators (urgency of goods delivery, safety of transported cargo, completeness of satisfaction of demand for transportation, rhythmic transportation and complexity of transportation) were used that best reflect the interests of cargo owners.

Forecast for changes in the level of demand, according to Yu. I. Sokolov and I. M. Lavrov, depends on the total integrated transport service quality index of cargo owners (P) and can be determined by the formula

$$Q = a \cdot P + b, \quad (5)$$

where $a = 0{,}52605199142 \pm 0{,}602585189964$; $b = 97{,}2271435139 \pm 26{,}9050621971$.

To perform calculations on forecast of level of income growth through increasing transport service quality we used initial quality indicators for 2014 year

Table 2

Calculation of the loss of volumes of ferrous metals loading on railway transport, mln tonnes

	Year				
	2010	2011	2012	2013	2014
Actual shipment of ferrous metals (report of JSC Russian Railways)	72,70	73,50	73,40	70,10	71,80
Production of main kinds of ferrous metallurgy products in the Russian Federation (Report of Ministry of Economic Development)	172,40	176,10	182,70	176,70	182,90
Ratio of output growth of main types of steel products		1,02	1,04	0,97	1,04
Possible load of ferrous metals, taking into account the coefficient of growth in output of basic types of steel products		74,26	77,04	74,51	77,13
Losses of volumes of ferrous metals loading		0,76	3,64	4,41	5,33

based on the survey of shippers conducted by the newspaper «Gudok» and the magazine «RZD-Partner». For further extension in the introduction of the system of relationship with customers the assumption is taken that one of the indicators (urgency of goods delivery) as a result of the introduction of the system will grow by 2% annually until 2020, and from 2021 – by 1%; index «safety» from 2017 to 2020 will grow by 1% and by 0,5% in subsequent years; other indicators will grow by 2,5% during the same period, and from 2021–by 1,5%. This will ensure that by 2025 growth of satisfaction index will have achieved 74,4%. The calculation results are shown in Table 1.

Effects of category of costs reduction in the model (1) are provided by:

- *automation of business processes of sales of transport services –* ΔC_i^{b-p};
- *automation of processing of contacts, queries and requests of customers –* ΔC_i^{proc};
- *creation of a customer self-service portal system –* ΔC_i^{pss};
- *automation of process of control over applications fulfillment related to transportation and provision of transportation and logistics services –* ΔC_i^{cont};
- *elimination of costs of customer information duplication –* ΔC_i^{dup}.

Additive model to reduce costs as a component of direct effect of creating a system of relationships with customers on aggregated products i = 1–n:

$$\Delta C = \sum_{i=1}^{n} (\Delta C_i^{b-p} + \Delta C_i^{proc} + \Delta C_i^{pss} + \Delta C_i^{cont} + \Delta C_i^{dup}). \quad (6)$$

Indirect economic effects of the introduction of the system of relationship with customers should include corporate-wide effects of the holding company, which are not amenable to direct calculation, but are important for the corporation and its main shareholder, the state, as well as the employees of JSC Russian Railways.

Those in the perimeter of this definition are the effects of competitive advantages on the transport market, including reduced time to entry into market of effective integrated transport and logistics services, that add a value to the customer, as well as income for the holding structures.

A major advantage of the system of relationships with customers is the ability to save transparency of communication with customers and increase loyalty, motivation and productivity of employees.

All these parameters of indirect effect are reflected in the capacity of investment borrowing on financial markets and, ultimately, on the value of the company, the least being integral index of indirect effects of the system of relationship with customers.

An important part of evaluating the effectiveness of the system of customer relationship are risk reduction effects, preventing the impact of negative factors on the development of the holding company. For example, the risk factors that need attention and reaction, include:

- *loss of the most profitable customers;*
- *deterioration of relations with partners of the transport and logistics business unit;*
- *staff related risks;*
- *reduction of customer satisfaction.*

Accordingly, counter effects of such risks are results (indicators), directly opposite to the content of risk factors, any negative influences and trends in the development of the holding.

Let's consider as an example the situation with the change of ferrous metals transportation – one of the high-yield cargo of railway transport, which decreases with an increase in production volume. If the volume of traffic in 2010–2014 grew in proportion to the rate of increase in production, the volume of loading of ferrous metals, taking into account the growth rate would also have increased. Losses are the difference between possible traffic volume taking into account the coefficient of growth of production and the actual one. The calculation results for the reporting period are shown in Table 2.

If as a result of the introduction of the system of relationship with customers the risk of loss of high-profitable goods volume is reduced, it is possible to «return» during 2017–2025 5,33 million tons of ferrous metals, «departed» from the transport market of railway transport, which accounts for a significant share of potential revenues of the holding company.

For quality and fine assessment of direct effect on blueprints of hierarchical model of income growth they should be compared with costs of establishing and maintaining a system of relations with clients. But for the moment that is unrealistic.

Conclusion. *The introduced system of customer relationship management should in the near future ensure increase in efficiency of the management of transport and logistics business unit of JSC Russian Railways through timely and efficient supply of the corporate center with mandatory information, as well as quality service of shippers through the support of a full cycle of interaction with them, literate and competent management of marketing and sales of transport and logistics services.*

Formation of a full-fledged information space for a system of relationship with customers will allow as expected, transport and logistics business unit to establish effective and controlled commercial interaction with potential and existing customers. However, at the same time a model for evaluating the effectiveness of such a multi-activity tantamount to a customer-oriented strategy should also be enabled. Attempts to develop simulation of that kind, to which our research belongs, require continuation, as new methodology has not been developed yet.

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Article received 24.08.2015, accepted 30.11.2015.