

ARTICLE

TARGET-COSTING AS A TOOL OF COST FORMATION FOR PRODUCT WITH HIGH SHARE OF PURCHASED COMPONENTS

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ABSTRACT

One of the main and common risks of industrial outsourcing is the uncontrolled increase in prices of purchased product components. The instability of prices for the products of the outsourcer directly affects the price level of the manufactured product and its profitability. Therefore, to correctly form the cost and establish long-term relationships with suppliers of components, you can apply the method of targeted calculation of target-costing. Target-costing is devoted to the study of many articles and publications, most of which are based on the experience of Russian manufacturing enterprises. Target-costing has established itself as an effective management accounting tool in crisis management in cost management. Moreover, in some enterprises, target pricing is the main tool for strategic cost management. I would like to note that the application of the target-costing method for Russian truck manufacturers, who are engaged in the most difficult competition with Asian and European companies, is especially important. It is very important to optimally cooperate the costs of the future product already at the design stage, since at the stage of the production cycle, as a rule, there are not many opportunities to display technological flexibility to influence the costs. The purpose of this work is the formation and description of the algorithm to achieve the target cost of the future car using the method of target-costing, taking into account the peculiarities of the Russian automotive industry.

INTRODUCTION

KEY WORDS
truck-building industry,
industrial outsourcing,
target-costing, risks, cost
price.

One of the main and common risks of industrial outsourcing is the uncontrolled increase in prices of purchased product components [1]. The instability of prices for the products of the outsourcer directly affects the price level of the manufactured product and its profitability. Therefore, for proper formation of cost and establishment of long-term relationships with suppliers of components, you can apply the method of targeted calculation of target-costing.

Target-costing is devoted to the study of many articles and publications, most of which are based on the experience of Russian manufacturing enterprises. Target-costing has established itself as an effective management accounting tool in crisis management in cost management [2]. Moreover, in some enterprises, target pricing is the main tool for strategic cost management [3]. I would like to note that the application of the target-costing method for Russian truck manufacturers, who are engaged in the most difficult competition with Asian and European companies, is especially important. It is very important to optimally co-operate the costs of the future product already at the design stage, since at the stage of the production cycle, as a rule, there are not many opportunities to show technological flexibility to influence the costs [4].

MATERIALS AND METHODS

The algorithm for achieving the target cost is presented in [Fig. 1].

Consider each step of the algorithm in more detail.

1. Marketing research

When conducting marketing research is necessary:

- take into account the price level of similar products of Asian and Russian producers;
- competently choose a segment of future products, given its design features and advantages over competitors;
- take into account the "consumer voice" and consumer properties of future products;
- take into account the technical and price level of possible purchased components of future products.

Also in the framework of marketing research is determined by the possible volume of sales of future products.

2. Determination of the price of shipment from the enterprise

Having determined the market price of future products, it is necessary to "clear" it of value added tax and dealer marginal profits:

$$S_{PS} = S_{MP} - S_{VAT} - S_M \quad (1)$$

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SPS – price of shipment of future products from the enterprise; SMP – market price of future products; SVAT – value added tax; SM – the profit margin of the official dealer.



Fig. 1: The algorithm for achieving the target cost.

3. Determination of investment costs

Investment costs are the sum of investments in the development, production and sale of future products by one unit. The value of this indicator is determined by the following formula:

$$S_{IC} = \frac{I(1+i)^V}{V} \tag{2}$$

SIC – investment costs per unit of output; SI – investments in the development, production and sale of future products; i – index by type of investment costs; V – planned sales of future products.

The value of the indicator V depends on the target payback period of investments. If the company plans to recoup the investment in one year, then the V indicator is equal to the annual implementation plan, if in three years, then V is equal to the three-year sales plan for future products. Consequently, the lower the target investment payback period, the higher the value SIC.

Also, the indicator V can be equal to the plan for the implementation of future products for the entire life cycle of the project.

4. Determination of margin and net profit

Having determined the price of shipment of future products from the plant and investment costs per unit of output, we determine the level of marginal profit using the following formula:

$$S_{MP} = S_{FC} + S_{IC} + S_{NP} \tag{3}$$

SMF – the profit margin of future production; SFC – fixed costs per unit of output; SNP – net profit of future products.

Since in this paper we consider the application of the method of target-costing to form the cost of products with a high proportion of purchased components, the value of the SFC will be relatively low. And the value of the SNP can be determined by the method of direct-costing, setting the desired level of break-even point [5].

5. Determination of target prices for purchased components

Next, we determine the value of the variable costs per unit of output through the following formula:

$$S_{VC} = S_{PS} - S_{MF} \tag{4}$$

SVC – variable cost per unit of output.

The value of the SVC indicator includes the cost of raw materials and materials, the cost of purchased components, labor remuneration of production personnel, depreciation on fixed production assets, etc. Select the cost of purchased components through the following formula:

$$S_{OC} = S_{VC} - S_{RMS} - S_S - S_D - S_{OVC} \tag{5}$$

SOC – cost of purchased components per unit of output; SRMS – costs of raw materials per unit of production; SS – remuneration of production personnel per unit of production; SD – depreciation on fixed assets per unit of output; SOVC – other variable costs per unit of output.

Having determined the value of the SOC indicator, we form a list of purchased components in which all possible outsourcers should be indicated, the quality level of their products, target prices and commercial proposals for their products [Table 1].

Table 1: Approximate form of the list of purchased components

No	Component	Outsourcer	Production level of quality	Target price	Offer
1	Component 1	Supplier 1	Average	X ₁ of thousand rubles.	X ₂ of thousand rubles.
		Supplier 2	The low		X ₃ of thousand rubles.
	
2	Component 2	Supplier 1	The high	Y ₁ of thousand rubles.	Y ₂ of thousand rubles.
		Supplier 2	The low		Y ₃ of thousand rubles.
	
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Some explanations for [Table 1]:

- each company individually determines the quality levels of the product of the outsourcer;
- the target price is the maximum allowable price for the purchase component determined at the enterprise. The amount of target prices for all purchased components is equal to the value of the indicator SOC:

$$\sum_{j=1}^m a_j * S_{TP_j} \approx S_{OC} \tag{6}$$

STP – target price for the purchased component; j – index by type of purchased components that make up future products; a – quantity of purchased component to be installed on one product.

- commercial offer is the price of the purchased component, set by the outsourcer with regard to serial deliveries.

Next, we select the optimal purchased components in such a way that their quality level meets the chosen requirements, and the commercial proposals “fit” into their target prices.

6. Cost reduction

Most often, it is not possible to pick up the purchased components that are optimal in terms of quality and commercial offer from the first time. Therefore, within the framework of this stage, the main directions of work to reduce all kinds of costs to achieve the target cost using acceptable quality purchased components are determined.

We can distinguish the following measures to reduce costs:

- creating a competitive environment for outsourcers;
- compliance with the industrial assembly regime [5];

- localization of some components of the outsourcer product [6];
- increase the target payback period of investments;
- unification of purchased product components [7];
- the conclusion of long-term contracts [7].

Obviously, this is not the whole list of possible cost-cutting measures.

As an example, we can cite the following main measures to reduce the costs that were used in KAMAZ PJSC as part of the restyling of the model range of trucks:

- localization of some components of the products of joint ventures of KAMAZ PJSC and foreign partners [7];
- compliance with the industrial assembly [8].

7. Achievement target cost

Achieving the target cost of future products should also be accompanied by the elaboration of measures to protect the product from all sorts of risks and continuous improvement. Consider every direction.

1) Product protection

It is necessary to take into account all possible risks associated with the production and sale of future products. For example, having determined the target cost price and having reached it, having started designing, and then producing and selling future products, competitors can use dumping. Therefore, it is always necessary to be prepared for similar scenarios for the development of situations.

2) Continuous improvement

Under the constant improvement refers to the continuous decrease in the cost of future products in the process of its production.

RESULTS AND DISCUSSION

The application of target-costing target calculation method in PJSC «KAMAZ» was carried out together with the modernization of the model range of trucks and the use of production outsourcing. Since restyling meant a significant improvement in the quality and consumer properties of the products, which was achieved by using automotive components from leading world manufacturers such as Cummins, Federal Mogul and Zahnrad Fabrik, the modernized cars were positioned in the middle price segment [9].

However, the restyling could lead to a more significant increase in the price of a car that would not be competitive on the market. Therefore, to control the cost was applied the method of target-costing, which helped determine the target cost of the purchased components of the car. To achieve these target costs, the sourcing maneuver model was applied, the essence of which was as follows: the customer company allocates part of its divisions to create a joint venture (JV) with a partner, then transfers the production of one or another component to this JV, while retaining production process.

As part of the restyling of the model range, PJSC «KAMAZ» organized on its own premises such joint ventures as «Cummins KAMA», «Federal Mogul Naberezhnye Chelny», «ZF KAMA» and «Knorr-Bremse KAMA». And besides the transfer of the production of automobile components to this joint venture, PJSC «KAMAZ» deals with the localization of some components of joint venture products at its own factories [6].

In other words, the use of a sourcing maneuver model allowed us to achieve the target cost of a restyled car by reducing the cost of delivery and customs duties, as well as localizing and performing part of operations at PJSC «KAMAZ» plants. Thus, the application of the target-costing method helped not only to competently modernize the model range of trucks, but also to optimize the production areas of the enterprise.

The use of the target-costing method in PJSC «KAMAZ» allowed to correctly modernize the model range of trucks: the market price of the restyled car does not exceed the average price segment, while significantly improving the technical characteristics of the product. As a result, there was an increase in the share of PJSC «KAMAZ» in the Russian truck market. For example, the company's share in the Russian truck market with a gross weight of 14-40 tons in the first quarter of 2012 increased by 5% compared to the same period in 2011 and amounted to 44% [10].

An important factor in the growth of demand for the products of PJSC «KAMAZ» is the modernization of the model range and the introduction to the market of restyled trucks at competitive prices.

CONCLUSIONS

The application of the target-costing method allows, initially, at the design stage of products, to select the purchased components that are optimal in price and quality, concluding long-term relationships with

outsourcers and defining the main measures for continuous improvement. The method helps to identify all sorts of risks at an early stage and take the necessary measures to minimize them in advance, thereby safeguarding future products.

The use of production outsourcing has a positive effect on the break-even point of the enterprise, therefore, by strengthening the use of this tool by the method of targeted calculation of target-costing, it is possible to significantly increase the competitiveness of the enterprise.

CONFLICT OF INTEREST

There is no conflict of interest.

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REFERENCES

- [1] Farkhoutdinov I, Ilnour, Isavnin G. [2012] Alexey, Analysis of the main risks of industrial outsourcing in the Russian automotive industry Proceedings of the VIII international scientific and practical conference News of advanced science, Sofia, Bulgaria. 6:16-20.
- [2] Elakova AA. [2011] Target-costing as a tool of management accounting. Journal of Accountancy. 12:106-108. URL: <http://www.buhgalt.ru/ftpgetfile.php?id=386>
- [3] Volkova ON. [2006] Target pricing as a tool of strategic cost management. Journal Economic analysis: theory and practice». 7(64).
- [4] Yakubov IZ. Standart-costing, target-costing and kaizen-costing at various stages of life cycle of a product // URL: http://lomonosov-msu.ru/archive/Lomonosov_2007/24/magnit@mail.ru.doc.pdf
- [5] Isavnin AG, Farkhoutdinov II. [2012] Influence of industrial outsourcing on breakeven of enterprise. Journal «Financial analytics: problems and decisions». 30(120):2-8.
- [6] Isavnin AG, Farkhoutdinov II. [2012] Estimation method of economic efficiency of industrial outsourcing application for truck-building enterprise in Russia Journal «Regional economy: the theory and practice», 13(224):16-21.
- [7] Isavnin AG, Farkhoutdinov II. [2013] Application of the target-costing method in the formation of the cost of a car with a high share of purchased components Journal Economics and entrepreneurship. 8(37):274-278.
- [8] Lobachyov M. The Russian industrial assemblage. [Electronic resource] URL: http://www.gazeta.ru/auto/2011/03/01_a_3542449.shtml
- [9] Strategy of KAMAZ PTC for the Period Until the Year 2025. URL: https://kamaz.ru/upload/import_texts/KAMAZ%20Strategy%202025_Public.pdf
- [10] Isavnin AG, Farkhoutdinov II. [2014] Target approach to formation of cost of the car with a high share of purchased components. Journal "TISBI". 1:217-225.
- [11] Anikin BA, Rudaya IL. [2009] Outsourcing and out staffing: high technologies of management: studies. grant 2 prod, reslave and additional M.: INFRA-M.
- [12] Jean-Louis Bravard. [2006] Smarter outsourcing: an executive guide to understanding, planning and exploiting successful outsourcing relationships. Jean-Louis Bravard and Robert Morgan. 249.
- [13] Anderson E, Trinkl B. [2006] Outsourcing on sales (the lane with English). M: Kind Book publishing house. 416.
- [14] Kurbanov AKh, Plotnikov VA. [2012] Outsourcing: history, methodology, practice: Monograph. M.: INFRA-M. 112.
- [15] Ioseliani K. [2006] localization Model: what is important to consider when choosing it in Eastern Europe and Russia. URL: <http://www.janusww.com/ru/news-events/publications/65-2011-09-27-07-03-04>.
- [16] Gorelov DA, Verbitskaya VI, Bredikhin VM. [2010] Strategic directions of decrease in transactional expenses of the enterprise Magazine «Економіка та упр. п-вами машинобуд. галузі: пробл. теорії та практики». 4:5-12.