

Goal Costing-Cost of Products (Works, Services) Calculation Methods Based on Systems Target Costing and Kaizen Costing in Sphere of Information Technologies

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Abstract: In connection with the general post-industrialization of society, the share of companies engaged in the products (works, services) of information technologies is increased. The study defines, the place of the information technology industry in the modern economy. It is leading to the expansion of the market and increasing of competition. In such circumstances, a greater ability to “survive” have those companies that are able to competently manage their costs and as a result, their profit. Currently, there is no single concept of cost accounting and cost calculation in the companies of information technologies. The absence of such concept determined the relevance of topic. It is proposed to use the method goal costing for calculation of the cost of products (works, services) of information technologies developed by researcher which based on principles of target costing and kaizen costing. The incremental algorithm of goal costing is reviewed and given the example of its using for calculation of the cost of products (works, services) of information technologies.

Key words: Target costing, Kaizen costing, cost calculation, calculation methods, survive

INTRODUCTION

Calculation of the cost is necessary element of cost management in any company. The main goal of costing is not only calculation of the actual cost of the product but estimation of such cost which could ensure profit in market conditions. Therefore cost of products (works, services) calculation should be mostly guided on realization of company’s strategy in the medium and long term. It’s mentioned in the book “Key Strategy Tools” by Vaughan Evans that cost calculation and cost reduction questions are the basics for building of company’s strategy (Evans, 2013).

All economic players are the direct participants of information technologies market: they buy products (works, services) according to their own needs. At the same time, sphere of information technologies is innovative economic sector, i.e., sector based on stream of innovations, constant technological improvement, manufacturing and exporting of high-tech products with a high added value. The principle of markets diversity, competition and high demand for innovation, initiation of new markets are the fundamental indicators of innovative economy.

Rapid development of information technologies favors the creation of new products, works and services. Owing to this the management accounting is facing the next question: Are there any currently relevant mechanisms of cost accounting and calculation of the

cost of products (works, services) in sphere of information technologies? To date any guidelines on the calculation of the cost of products (works, services) in sphere of information technologies are virtually absent.

MATERIALS AND METHODS

A distinctive feature of sphere of information technologies is the uniqueness of produced products (works, services). At the same time, increased competition and specificity of products (works, services) allow to establish the fact that producer obtains relative freedom in price generation at the moment of new product creation. That means that firstly the company should define the desired sales price which will provide the necessary level of profitability (Gorodilov and Fetisova, 2015a).

Described situation presents the beginning of “target” cost forming process. Necessary results will be got using target costing method. The term “target costing” for the first time was used by Toshiro Hiromoto in 1988 in the article “Another hidden Edge: Japanese Management Accounting” (Hiromoto, 1988) where the author compared the cost accounting system in Japan and the United States. Target price defines by marketing researches. Target profit means the profit margin which is necessary for development of the company and satisfaction of owner’s needs.

Kaizen costing is the continuation and integral part of target costing. It is a system of continuous operational

control of costs and small improvements. The term “Kaizen costing” for the first time was used by Monden (1998) in the mid-1990s. He qualified kaizen costing as approach that works closely with target costing system at different stages of production process. In Monden’s book Kaizen costing for the first time takes the form of a tool which contributes to lower production costs.

Target costing and Kaizen costing solve almost the same problem but at different stages of the product life cycle and by different methods.

Their common goal is to reduce the level of individual cost items and the cost of the final product to some acceptable level, besides:

- Target costing solves this problem at the stage of planning and product development
- Kaizen costing solves this problem at production stage

The synthesis of the two systems provides a very valuable competitive advantage to the enterprise in its achieving lower level of cost in relation to competitors and possibility to choose a convenient price policy for retention (capture) of the respective market sectors.

Goal costing methods; the incremental algorithm: Goal costing is the cost of products (works, services) calculation methods based on systems target costing and Kaizen costing in sphere of information technologies created by authors of present article.

When developing the goal costing methods we used all the characteristics of target costing and Kaizen costing simultaneously.

The term “Goal costing” is the mix of two English words “goal” that means aim and “costing” that means calculation of cost. Goal costing is based on the idea of synthesis of target costing and Kaizen costing. This synthesis will allow to provide the most accurate and reliable data on the cost of products (works, services) of information technologies to identify those areas of activity need to be worked on in order to reduce costs to evaluate the contribution of staff in process of costs minimization. Let us give the researchers definition of Goal costing:

Goal costing is a cost of products (works, services) calculation methods based on calculation of target cost of products by kaizen tasks setting. Solution of Kaizen tasks by employees will contribute gradual cost reduction and achievement of such level of cost which will ensure required rate of return for company

Goal costing also based on elements of job order costing cause all the products (works, services) in sphere of information technologies are produced on the basis of specific order and have individual character. The incremental algorithm of Goal-costing is depicted in the Fig. 1.

The proposed methods has been tested in the company “Silenseo” (Perm, Russian Federation) working in the field of information technologies. The article describes algorithm of cost calculation of SEO-promotion services for housing estate site “Karaseozerskii-2”.

It should be mentioned that Goal costing uses elements of target costing before product producing stage and elements of kaizen costing after it. Target price estimation is implemented in accordance with following pricing factors:

- Quality, characteristics and properties of products (works, services)
- General consumer demand for products (works, services) of information technologies sphere
- Quality of competing products (works, services) of information technologies sphere
- Price of competing products (works, services) stated by other participants of information technologies market

Incremental Goal costing methods begins with target price estimation:

Step 1: Marketing analysis of products (works, services) the purpose of which is to determine the competitiveness of these products (works, services) on the market.

Step 2: Product (works, services) concept development including verification of this concept on a group of target consumers and defining a marketing strategy.

Step 3: Target price estimation based on the data obtained in Step 1 and 2. These steps are illustrated by Table 1. The next steps in Goal costing algorithm is:

Step 4: Target profit estimation. The value of target profit means the sum is necessary to meet the demands of the company owners. Target profit for the company “Silenseo” for the project “Karaseozerskii-2” is 25% \$2,700 per year or \$225 per month.

Step 5: Target cost estimation according to Eq. 1:

$$\text{Target cost} = \text{Target price} - \text{Target profit} \quad (1)$$

Table 1: Target price estimation of SEO-promotion services for housing estate site “Karaseozerskii-2”

Stages	Pricing factors
Marketing analysis	Characteristics and description of services: A set of measures to raise the position of the site of housing estate “Karaseozerskii-2” in the search engine results in order of site promotion Competitiveness: Services for business segment according to special order, Good portfolio with other projects supporting the achievement of target characteristics in SEO-promotion services Competitors: Russian companies working in field of SEO-promotion services: Demis group, ingreat development, domen master, Russian promo, Element (group of companies) Quality of competing services: SEO-promotion services for Russian leading companies: Beeline, Rosgisstrah, Bank Uralsib Price of competing services: \$1000 per month
Product (works, services) concept development	Product development strategy: Direct marketing in order to sell SEO-promotion services to potential customers Promotion strategy development: Registration in search engines catalogs, link exchange, placement of articles, social networks, press release, blogging
Target price estimation (in dollars)	The \$10,800 for one order of SEO-promotion services in year \$900 per month

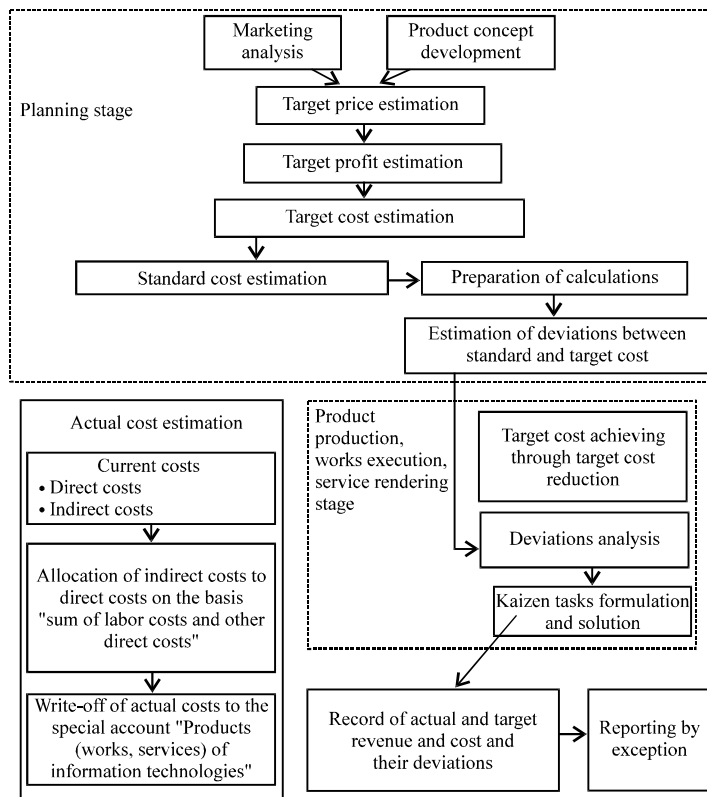


Fig. 1: Goal costing methods

Target cost for the project “Karaseozerskii-2” is: \$10 800-2,700 = \$8 100 per year; \$900-225 = \$675 per month.

Step 6: Standard cost estimation of products (works, services). After the establishment of target cost the planning phase begins. During this phase design and engineering are begun and standard cost is calculated. If standard cost exceeds the target cost necessary changes and improvements are brought in the order calculation until standard cost will not exceed target cost.

Step 7: Obtained standard cost is compared with target cost by means of calculation form presented below in Table 2. Deviations between target cost and standard cost are determined.

Often in the beginning of the project standard cost despite of all efforts made at the planning stage for bringing it to the target cost begins to exceed target cost at the production stage. Then the management of company should turn to the next step in Goal costing process.

Table 2: Standard cost and target cost calculation of SEO-promotion services for housing estate site “Karaseozerskii-2”

Cost items	Standard cost (\$)	Target cost (\$)	Deviation (\$)
Direct labor costs			
Labor costs of SEO-promotion services specialist	2,400	2,400	-
Labor costs of copywriter	720	620	100
Direct social benefit costs			
Social benefit costs from SEO-promotion services specialist salary	720	720	-
Social benefit costs from copywriter salary	216	186	30
Other direct costs			
Expense accounts for presentation of project results to the customer \$400	200	200	-
External site optimization costs	1,920	1,920	-
Indirect costs			
Labor costs of management	300	300	-
Social benefit costs from management salary	90	90	-
Depreciation of office space	300	300	-
Depreciation of office equipment	44	44	-
Depreciation of software	40	40	-
Office space maintenance and repair costs	100	60	40
Office equipment maintenance and repair costs	60	40	20
Labor protection costs	20	20	-
Security costs	300	300	-
Staff trainings costs	80	-	80
Taxes	800	800	-
Expense accounts	40	40	-
Business expenses	100	60	40
Communication services costs	30	30	-
Post costs	10	10	-
Consulting and audit expenses	100	50	50
Office expenses	10	10	-
Bank services costs	60	60	-
Property insurance costs	100	100	-
Total	8,960	8,400	560

Step 8: Analysis of all the cost items for the purpose of standard cost and target cost equalization. Kaizen tasks setting and solving.

In the example standard cost exceeds target cost. All the deviations are shown in Table 2. Management and all employees need to work with in order to bring the value of standard cost to the value of target cost.

There are following measures of bringing the value of standard cost to the value of target cost in project of SEO-promotion services for housing estate site “Karaseozerskii-2”:

- The reduction of copywriter’s salary by \$100 per year can be reached through the hiring of worker with lower qualifications and less work experience which generally willn’t affect the quality of work. Social benefit costs will also reduce by \$30 (Total cost reduction: \$130)
- Expense accounts for presentation of project results to the customer will be reduced by means of conducting the event within an office with coffee break and without catering service (Total cost reduction: \$200)
- Office space and equipment maintenance and repair costs are planned to reduce by purchasing of cheaper materials for repair (Total cost reduction: \$60)

- Staff trainings costs are planned to reduce by transfer of trainings to the next periods (Total cost reduction: \$80)
- Business expenses are planned to reduce by decreasing of flight tickets costs (economy class instead of business class) (Total cost reduction: \$40)
- Consulting and audit expenses are planned to reduce by conclusion contracts with companies which provide cheaper price for their services (Total cost reduction: \$50)

All these measures mean that management achieved the equality of standard cost and target cost at the planning stage by means of Goal costing. Moreover, opportunities of costs reducing were found.

Than the production stage begins. At this moment, Goal costing starts to use the toolset of Kaizen costing. Ascertained at the planning stage opportunities acquire the status of Kaizen tasks. At this stage, all employees should be motivated to perform kaizen tasks in order to achieve result which is equal or exceeds data indicated in Kaizen task.

Special Kaizen tasks cards are opened for every project in the company. The proposed form of kaizen tasks card was developed by authors specially for the companies working in field of information technologies.

Kaizen tasks card of the project of SEO-promotion services for housing estate site “Karaseozerskii-2” is presented in Table 3.

Table 3: Kaizen tasks card of the project of SEO-promotion services for housing estate site “Karaseozerskii-2”

Cost items	Standard cost (\$)	Target cost (\$)	Kaizen task (Column 2-3) (\$)	Kaizen task solving measures	Actual cost (\$)	Deviation actual from target (Column 6-3)(\$)	Result of kaizen task solving
Labor costs of copywriter	720	620	100	The work was partially performed by trainee	400	-220	Solved
Social benefit costs from copywriter salary	216	186	30	The work was partially performed by trainee	120	-66	Solved
Expense accounts for presentation of project results to the customer	400	200	200	The presentation was organized without catering service	200	-	Solved
Office space and equipment maintenance and repair costs	160	100	60	Cheap materials were purchased	40	-60	Solved
Staff trainings costs	80	-	80	All trainings are transferred to the next financial year	-	-	Solved
Business expenses	100	60	40	All the contracts are concluded with regional companies	40	-10	Solved
Economy class tickets are bought for all top management	60	-	Solved		-	-	Solved
Consulting and audit expenses	100	50	50		-	-	-
Total	1,776	1,216	560		860	-356	-
Incl. positive deviation	-	-	-		-	-356	-
Incl. negative deviation	-	-	-		-	-	-
Percentage of kaizen task solving ((column 4-7)/ column 4)×100% (no >100%)	-	-	-		-	-	100%

Table 4: Actual direct costs of the project of SEO-promotion services for housing estate site “Karaseozerskii-2”

Direct cost items	Actual costs (\$)
Labor costs	2,800
Social benefit costs	840
Expense accounts	200
External site optimization costs	2,160
Total	6000

Let us give some comments on the structure and indicators of this document. First three columns present the value of standard cost, the value of target cost and the value of Kaizen task for every cost item. Description of activities for solving each Kaizen task is given in the next column. Two columns present the value of actual cost and its deviation from target cost. The value of deviation represent solving of kaizen task in numerical form. The last column gives the information regarding solving or not-solving the kaizen task with marks “solved” or “not solved” (Gorodilov and Fetisova, 2015a, b).

The last row of the card represents the overall percentage of Kaizen tasks solving which is calculated by the Eq. 2:

$$\text{Overall percentage of Kaizen tasks solving} = \frac{\text{Kaizen task} - \text{Actual from target cost deviation}}{\text{Kaizen task}} \times 100\% \quad (2)$$

The economic meaning of the phrase “Kaizen task solving” is to bring the value of actual cost to such a value which in monetary terms is equal to target cost or less by the efforts made by all company departments.

According to the data presented in Table 3 the authors can affirm that target costing and kaizen costing toolset helps company to reduce some cost items substantially and brings it to target costs.

Step 9: Actual cost calculation. Direct costs are included in cost of products (works, services) on the basis of primary documentation on the basis of concrete project. Indirect costs are distributed between the contracts (orders) in accordance with the distribution base which means a combination of direct labor costs and other direct costs. The researchers of study recommend this distribution base cause from our point of view it reflects the specificity of information technologies the predominance of labor costs in the cost structure and the availability of specific to the sphere of information technologies costs in other direct costs (Fetisova, 2015).

In the process of SEO-promotion services rendering the following actual direct costs were emerged in “Silenseo” (Table 4).

Total direct costs sum of “Silenseo” is \$11,600. Besides the project of SEO-promotion services for housing estate site “Karaseozerskii-2” the company carries out four projects more. All the data for these projects are given in Table 5 and should be used for indirect cost rate calculation (Table 6).

Actual costs of the project of SEO-promotion services for housing estate site “Karaseozerskii-2” is presented in Table 7.

Step 10: Booking of actual and target value, actual and target cost and their deviations.

Table 5: Indirect costs distribution base for “Silenseo”

Projects	Direct labor costs (\$)	Other direct costs (\$)	Total (\$)
SEO-promotion services for housing estate site “Karaseozerskii-2”	2,800	2,360	5,160
SEO-promotion services for housing estate site “Three capitans”	3,000	2,260	5,260
SEO-promotion services for housing estate site “Avrora”	2,800	2,320	5,120
SEO-promotion services for detergent “Zing”	3,600	2,000	5,600
SEO-promotion services New York Film Academy Russia	3,000	2,400	5,400
	15,200	11,340	26,540

Table 6: Indirect cost distribution rate for “Silenseo”

The indicator lying at the root of indirect costs distribution base (1)	Total sum of indirect costs (2) (\$)	Total sum of distribution base according to the indicator (column 1) (3) (\$)	Indirect cost rate (column 2/3) (4)
Sum of direct labor costs + Sum of other direct costs	11,600	26,540	0,437

Table 7: Actual costs of products (works, services) in “Silenseo”

Projects	Total sum of direct costs (\$)	Total sum of indirect costs calculated through its distribution in proportion (column 4, Table 5×0,437) (\$)	Actual cost (\$)
SEO-promotion services for housing estate site “Karaseozerskii-2”	6,000	2,255	8,255
SEO-promotion services for housing estate site “Three capitans”	6,300	2,299	8,599
SEO-promotion services for housing estate site “Avrora”	6,000	2,237	8,237
SEO-promotion services for detergent “Zing”	6,400	2,447	8,847
SEO-promotion services New York Film Academy Russia	6,300	2,360	8,660
Total	31,000	11,598	42,598

Table 8: Form of Report on deviations of actual cost from target cost

Cost item	Actual cost (\$)	Target cost (\$)	Deviation (column 2-3) (\$)	Character of deviation (positive/negative)	Reason of deviation	Responsible person
Materials	600	540	60	Negative	Growth of US dollar rate	-

Step 11: Reporting on deviations. The proposed form of this report is presented in Table 8. Management do it in order to establish the reason of deviation and person responsible for it.

RESULTS AND DISCUSSION

Goal costing methods was applied for cost calculation of the project of SEO-promotion services for housing estate site “Karaseozerskii-2” in “Silenseo” company. According to data presented in Kaizen tasks card (Table 3) the result of Goal costing application is solving of all the Kaizen tasks (100%). Goal costing methods allowed to get savings in amount \$356 of 30% from target cost.

Goal-costing methods based on target costing and Kaizen costing principles with elements of job order costing entirely concentrate at the company activities improving using internal reserves, without attracting large outside investments.

Significant advantages of both methods are costs reducing, guaranteeing of production profitability, ability to manage costs both by implementation of the current activities and building plans for the future. According to aims and principles of lean production Goal costing may be one of the key tools in company’s management.

Developed Goal costing methods demonstrates that the best result in the process of cost accounting and cost calculation is obtained by synthesis of target costing and Kaizen costing.

Moreover, Goal costing indicators (such as “target cost”, “target profit” and “target price”) could be reviewed as key performance indicators in the company. Cause “profits are important for all business regardless of whether they are in private or public sector. The profits can then be reinvested to grow the company (called retained earnings) and used to pay a return to the company’s owners or shareholders (called dividends)” (Marr, 2012).

CONCLUSION

In a competitive market environment the question of cost management namely reduction of the product cost affects all companies worldwide (Sheshukova *et al.*, 2014).

It should be mentioned in summary that products (works, services) calculation reasonable to be done by Goal costing methods cause compared to other methods target costing and Kaizen costing toolset allow to calculate cost which is the closest to the environment conditions where the company operates.

The term “target cost” is differ from “standard cost”. Standard cost is calculated in the basis of norms and standards of the specific company. Standards are oriented on existing production technologies and traditional characteristics of products. Therefore, the standard cost depend on engineering and production capacity. Target cost is the value of cost maximum allowable (acceptable) to the market conditions.

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REFERENCES

- Evans, B., 2013. Key Strategy Tools. The 80+ tools for every manager to build a winning strategy. Dorset Press, Dorchester, Great Britain.
- Fetisova, O.A., 2015. Development costs classificator and codificator for improving the methodological support of cost accounting and calculation of cost of products (works, services) in sphere of information technologies. *Upravlencheskiy uchet*, No. 2.
- Gorodilov, M.A. and O.A. Fetisova, 2015a. Industry characteristics of cost accounting and calculation of cost of products (works, services) in sphere of information technologies. *Vestnik of Pushkin Leningrad State University T.6.*, No. 1.
- Gorodilov, M.A. and O.A. Fetisova, 2015b. Goal costing cost of products (works, services) calculation methods based on systems target costing and kaizen costing in sphere of information technologies: monograph. Perm State National Research University, Perm, pp: 166.
- Hiromoto, T., 1988. Another hidden Edge: Japanese Management Accounting. *Harvard Business Review*. July-August, pp: 4-7.
- Monden, Y., 1998. Toyota production system, An Integrated Approach to Just-In-Time, Third edition, Norcross, GA: Engineering and Management Press.
- Marr, B., 2012. Key Performance Indicators. The 75 measures every manager needs to know. Dorset Press, Dorchester, Great Britain.
- Sheshukova, T.G., V.V. Lenina and K.A. Vorozhtsova, 2014. Activity-based costing for management costs distribution at industrial enterprise. *Perm University Herald. ECONOMY*, No. 1 (20).