

TARGET COSTING SUITABILITY FOR IMPROVEMENTS OF LEAN SUPPLY CHAINS

UDC 658.7

657.47

Bojana Novičević Čečević, Ljilja Antić

University of Niš, Faculty of Economics, Serbia

Abstract. *Competitive advantage can be seen as the superiority of some market participants to properly use resources and utilize key competencies to deliver greater value than competitors, without compromising product quality and functionality. In that sense, accounting, especially management accounting, successfully responds to managers' needs for information that will be their adequate support in strategy implementation. Lean concept and target costing are just some of the concepts whose strategic orientation can be a good support to managers. The aim of this paper is to point out the similarities and differences between lean concept and target costing and to show on a practical example how these concepts bring business improvements in supply chain.*

Key words: *lean concept, target costing, cost reduction, improvement*

JEL Classification: L11, M41

INTRODUCTION

Increased competition on the national and foreign markets, rapid technological development, diverse customer needs, as well as shorter product life cycle have led to the spread of the lean concept outside the company itself. Spreading principles of lean concept means redefining the corporate strategy and identifying the key processes that take place in the company.

Lean concept was implemented at Toyota for the first time in the 1950s and was aimed at building a continuous flow of value creation, while eliminating non-value-added activities in order to speed up the production cycle. It eliminated non-value-added activities and paid more attention to improving value-added activities. The company processes are connected in a

Received January 23, 2021 / Revised April 21, 2021 / Accepted April 24, 2021

Corresponding author: Bojana Novičević Čečević

University of Niš, Faculty of Economics, Trg kralja Aleksandra Ujedinitelja 11, 18000 Niš, Serbia

E-mail: bojana.novicevic@eknfak.ni.ac.rs

continuous flow, the work is reorganized through teams made up of people from different sectors and there is constant striving for improvement. This aspiration is driven by savings in human resources, space, machinery, time and cost reduction to meet the desires and needs of demanding consumers. Initially, the lean concept was applied in the field of production, and later spread to other organizational parts of the company as well as to the relationships that the company establishes with partners outside the company.

In order to take advantage of the lean concept, it is possible to combine it with some other concepts. Among others, the concept that fits lean requirements is target costing. Target costing was primarily applied as a cost control technique to eventually grow into an all-encompassing concept aimed at profitability management. Although it has had a predominant focus on the costs incurred in the product design phase, this concept also considers the costs incurred throughout the product life cycle as well as in the entire supply chain. Specifically, it aims to reduce costs in different phases of the production cycle of the company through the analysis of costs of each phase and the improvement of technological and production character. Due to its information suitability and numerous tools, this concept has grown into a powerful strategic instrument for profit management and planning. Target costing helps managers produce new product with price that the market accepts and ensure a certain margin and rate of return, as well as increase consumer satisfaction.

In that sense, the paper is divided into three parts. The first part of the paper points out the basics of the lean concept. The second part of the paper highlights the similarities and differences between the lean concept and target costing. Finally, a practical example shows how the application of these two concepts brings business improvements in lean supply chain.

1. EXTENDED APPLICATION OF LEAN CONCEPT

Lean concept was primarily applied in the production process. Numerous benefits observed from the application of the lean concept in the production process quickly gained the attention of the scientific and professional community, as well as the managers of the world's leading companies. In that sense, the lean concept began to be applied in the whole company. This is because the need to reduce or, if possible, eliminate waste and non-value-added activities in human resources, inventory, time to order the required information/products/services, business premises, etc. existed in almost all organizational parts of the company, from those central to product delivery to supporting parts (Kovacheva, 2010). The extended application of the lean concept to all organizational parts of the company has led to the formation of a new business organization called the lean enterprise (Womack & Jones, 1994). The lean enterprise is a group of individuals who, in a connected and synchronized manner, perform activities in a more efficient and economical way with the aim of quickly responding to the requirements of the next process or organizational part and deliver the required value. The goal is to analyze and direct the "value stream" in order to include as many activities as possible that focus on production and service delivery that provide maximum value. In that sense, it is important to focus on the company performance as a whole, rather than the performance of individuals, functions and organizational parts.

The formation of lean enterprise implies the application of five basic principles to all processes and organizational parts of the company. The first business principle is to define values. External value definition becomes the premise which the company relies

on. End consumers define the value and the company should try to best meet their needs and delivered required value. In an enterprise, the next stage of a process represents the end user of materials or information. Establishment of “value streams” in the company is the second principle of the lean business concept. The “value streams” that are established in the company refer to the entire business process, not only to the production process. Of course, in the company it is necessary to determine which are the key activities and processes that are performed and which deliver the required value, so they should be included in the value stream. Properly established “value streams” in the company enable the elimination of non-value-added activities, eliminate waste, downtime, reduce defects and the like. Properly established “value streams” ensure the removal of all obstacles and smooth flow of information, documentation and necessary materials to their users, which is the third principle of the lean business concept. The fourth principle refers to the introduction of a pull system. The signal to provide the necessary information is sent by the end consumer/user. The last principle is the pursuit of perfection. When “value streams” are established and their smooth functioning is ensured, the goal is to achieve the best possible functioning of the company as a whole. Here, the emphasis is primarily on key processes, but chances for improvement are also sought in the supporting processes (Novičević Čečević & Djordjević, 2020).

Key processes include processes that are directly related to the delivery of value required by consumers and processes that are not directly involved in value creation, such as integration with suppliers. The inclusion of processes related to establishing relationships with partners in the company strategy is important to ensure product quality and achieve a competitive advantage for the company. By applying the lean principle outside the company, a lean supply chain is created.

Lean supply chain refers to activities, functions and processes that take place not only in the company but also in all Upstream Activities and Downstream Activities. It includes suppliers, manufacturers, distributors and end consumers. The goal of a lean supply chain is to optimize the services provided, minimize costs, and maximize flexibility (Gallone & Taylor, 2001). The nine-zero concept derived from the lean concept can be used to achieve the goals of the lean supply chain. The nine-zero concept implies (Charron et. all, 2015):

- Zero dissatisfaction of partners,
- Zero non-compliance,
- Zero bureaucracy,
- Zero dissatisfaction of stakeholders,
- Zero delayed information,
- Zero waste,
- Zero non-value added activities,
- Zero errors and defects and
- Zero missed chances.

Some of the features of the lean supply chain are efficient communication and information transfer, synchronization of flows, elimination of waste, establishing a close long-term relationship, ensuring transparency, managing uncertainties and risks, striving for innovation and new knowledge and low inventory (Ugochukwu, Engstrom, & Langstrand, 2012). The formation of a lean supply chain is a key basis for achieving and improving competitive advantage. In this regard, special attention should be paid to the choice of partners for a particular lean supply chain. When selecting a partner for a lean supply chain, certain criteria must be respected. These criteria relate to the behavior and attitude of both suppliers and

consumers, the quality they deliver, the capacity they possess and the ability to deliver on time, payment terms and costs (Harris, Harris, & Streeter, 2011) (Jeffrey, 2004).

The first criterion for selecting participants in the value chain is the behavior and attitude of the partner. The attitude and behavior of the partner implies their attitude towards the company with which they establish partnership, as well as towards changes and improvements. If the partner has a positive attitude about the company, they will want to establish long-term partnerships with it. However, if the partner does not have a positive attitude towards the company, in order to deliver the value demanded by consumers, they must find a new partner. Perhaps the most important criterion for selecting participants in the value chain is their attitude towards change. Specifically, it should be re-examined whether the partner applies lean business principles. If this is the case then they want to maximize the value they deliver through constant and continuous improvements, while eliminating waste, and they should definitely be included. If the partner does not apply the lean business principles, and has the qualities to enter the process of lean values, it is possible to establish cooperation with them through training and pointing out the numerous advantages of applying the lean concept.

The next criterion when choosing a partner for long-term cooperation is the quality that is delivered. As quality is one of the vital elements of the “value stream”, special attention should be paid to this criterion. If a potential partner applies lean business principles, they should provide the required quality and can be considered a candidate for establishing partnerships.

The capacity of the participants in the value chain, both in terms of machinery and means of transport, and in terms of employees, is another criterion that the candidate should meet. Capacity is especially important for periods of demand fluctuation. Not only existing but also future capacities should be considered. The capacity available to the partner is closely related to product delivery on time. In this sense, if the partner wants to invest more in their capacity, with the aim of delivering the product on time, cooperation can be established with them.

Payment terms and credit standards are the next criteria for selecting a partner. To establish a long-term relationship, it is important that there is trust between the partners. Payment method and conditions will also depend on the level of trust. If the level of trust is higher, it is possible to get more favorable payment terms that will facilitate business. When it comes to payment, the application of advanced technologies among the participants in the supply chain should also be considered. Examining the functioning of the payment system is an important aspect for the company because of the possibility of improving the payment process and the company's accounting itself, which will be discussed later.

The last, but not least important criterion for choosing a partner for a lean supply chain is cost. The relevant supply chain should include all relevant partnership costs and decide on the establishment of cooperation on that basis.

Establishing long-term relationships and forming a lean supply chain will not be possible if partners do not meet all or most of the criteria. If the partners do not meet all the criteria, and there is an obvious desire to improve the business, it is possible to establish relations with them and with joint cooperation to improve the characteristics of the supply chain by performing two groups of activities. The first group of activities refers to the “development” of partners, while the second involves their coordination. “Development” of a partner means providing assistance in improving the strategy, tools and techniques applied by the participant in the supply chain in order to achieve a competitive advantage and at the same time eliminate waste in the resulting partnership.

Coordination means harmonizing the procedures that the company applies with the procedures of other participants in the supply chain in order to standardize them.

2. TARGET COSTING AND LEAN CONCEPT – SIMILARITIES AND DIFFERENCES

Improving the competitive position on a highly competitive and dynamic market implies the acceptance of new business concepts and a change in the organization of production and business processes in the company. The new concept should focus on the following (Vasile & Ion, 2013):

- Organization of the production process through the management of material, money and information flows, which will enable the reduction of costs, time, inventory and the like;
- Connecting phases and establishing a synchronized flow of the process that will indicate possible problems that arise and the possibility of their improvement and
- Integration with external partners in terms of cooperation and collaboration for the purpose of achieving a high level of performance.

The lean concept and the target concept meet the stated requirements for application in companies in the modern business environment. In the following text, we will show the extent to which the requirements of these two concepts coincide, as well as where there are certain disagreements.

Although many believe that target costing originated in Japan, the first evidence of implementation this concept was discovered as early as 1900 in the Ford Motor Company. In this company, managers focused their efforts on finding the best way to manage costs in the production process.

Target costing is a concept that focuses on consumer requirements, in terms of understanding what consumers want and what competitors do in order to meet consumer demand. In that sense, it is necessary to monitor the signals from the market and perform analyses on the basis of which the company will be able to produce the product in accordance with the required characteristics. This external company orientation reduces the probability of entering the market with a product that will not be profitable. In this sense, target costing is directly aimed at the implementation of the lean business principle in the following (Ward, 2003):

- Explicit focus on continuous improvement, cost reduction and elimination of waste in the product design phase;
- Focus on providing value to consumers through targeted sales prices;
- Precisely defined goals related to the company strategy and understandable to all company employees;
- Reducing business risk by defining the target profit;
- Encouraging product and process innovation through the application of value engineering;
- Demand for a high level of cooperation between different organizational parts of the company, as well as company cooperation with suppliers and partners;
- A holistic management approach that can be extended to the entire product life cycle that matches the “value stream”.

The concept of target cost is a proactive future-oriented management approach, which encourages rapid product development and rapid design, which on a highly competitive

market can be one of the prerequisites for achieving a leadership position, which a lean business concept seeks to achieve (Antić & Novičević, 2011). Also, this management concept establishes a direct link between specific consumer requirements and product design and costs, which is basically a lean business concept (Innes, 2004).

However, in addition to numerous advantages, which are achieved by applying the concept of target cost in a lean business environment, certain shortcomings have been noticed. A well-set target costing determines the directions of reaching the target costs and the target profit margin. But sometimes choosing a particular direction can require very strong pressure on employees. For example, striving to shorten product development time may require overtime, which by its nature increases employee tension and leads to their dissatisfaction, low motivation, exhaustion, and poorer results. This situation is unacceptable for companies operating in a lean business environment. This is primarily because employees are the main driving force of the company and employee satisfaction in the workplace is the premise from which to start in achieving a defined company strategy.

The concept of target-cost-based management emphasizes the role of designers, in terms of ensuring certain quality and functionality of products, and the role of managers, who control and coordinate cost management. Also, the role of strategic management accountants as managers and experts is important for achieving the target cost (Malinić, 2008). This concept pays little attention to employees who are directly involved in product creation. On the other hand, lean business concept of strengthening the role of employees is a very important success factor. This is due to the fact that managers in consultation with direct executors set projects for continuous business improvement.

Issues of cost reduction, operating losses, inventory levels, business optimization and product quality make target costing partially eligible for application in the lean supply chain (Antić, Stevanović, & Novičević Čečević, 2019). The concept of target cost takes into account all the above aspects of business, but not to the extent required of companies operating in a lean business environment. Specifically, the concept of target cost is aimed at reducing costs in the phase of product planning and development, while the lean business environment requires a focus on all stages of product development and business processes in the company. Target costing determines the amount of costs that provides a competitive market price of the product and target profit, which does not necessarily mean lowering costs to the lowest level, which is basically a lean business concept. Specifically, costs in the concept of management based on the target cost are reduced only to the amount of the target reduction, and not to the level at which all types of waste are eliminated, as required by the lean business concept. Inventory levels are determined in cooperation with suppliers, where the needs for product components play a significant role, so eliminating all type of waste and achieving zero inventory levels cannot be achieved by the target cost concept. Lean business concept strives to optimize and continuously improve all business processes at all stages of the product life cycle using a number of techniques, which leads to lower inventory levels. In the concept of management based on the target cost, the aspiration for business optimization is not particularly pronounced because continuous improvements are focused on the product design phase. The focus of this concept on the product design phase is important for the lean business concept, because it is in this phase that activities that determine quality, price, cost, functionality and the like are performed (Cooper & Slagmulder, 1997). Product quality as an attribute and controls with pull system are required by lean concept. Externally determined product value and quality is a good side of the target cost concept. But, the aspiration of this concept is to ensure cost reduction and product quality, not to ensure quality at the very source

of product development, which is the task of the lean business concept. Instead of applying a pull system in a lean business environment, the concept of target cost applies the technique of value engineering. The application of this technique gives good results, but it is for the long-term business operations in a lean business environment more adequate to apply the pull system (Antić & Novičević Čečević, 2018).

Based on all of the above, we can say that the concept of target cost can be a good tool to manage operations in a lean business environment. Specifically, the calculation of the target cost is not a completely adequate, nor a complete information basis for making business decisions in conditions of emerging lean production, but it can be of great help for the management of lean companies.

3. APPLICATION OF TARGET COSTING IN ACHIEVING LEAN REDUCTION

Although the match between lean concept and target costing is not complete, their joint application can give good results in order to reduce costs, improve business and achieve set goals. How the target costing can be a good information basis for a lean business concept and lean improvements will be shown on a practical example of a company in the field of construction material production (Al-HAshimi & Al-ardawe, 2020). The managers of this company decided to apply target costing through three levels: determining the amount of target cost, reaching the target cost and continuously improving it for the needs of future cost reduction (Zengin & Ada, 2010).

In this company, four centers of responsibility have been identified for which further research is needed in order to reduce costs (Example adapted from Al-HAshimi & Al-ardawe, 2020). They are: production center, service production center, service marketing center and service administrative center. The production center covers the production process in the company and refers to Raw materials acquisition and handling, Blending, and Pyro processing – Making clinker, and Finished cement grinding. The service production center includes those jobs and activities that do not add value to the product, but without their performance, even the regular activity of the company could not take place. Within it, the following costs have been identified: Electric power, Mechanical workshops and Maintenance. Warehousing and Logistics, Distribution and Transportation, and Marketing and Sales are the costs identified within the service marketing sector. Logistical support for the company's activities is summarized in the service administrative service and refers to costs of Auditing, Quality Control, Human Resources and Research and Development.

In order to determine the amount of the target cost, the company performed an analysis of the prices that competitors have for the same products. The market leader sells products at a price of 76 Eur so the managers of this company decided that their target selling price would be 75 Eur. Based on the determined target sales price, the target profit margin is established. The target profit is determined by applying the target profit margin to the target selling price. Of course, the target profit should be in line with the strategic plans of the company, so as such it must receive support from the top managers of the company (Novičević Čečević, 2016). The target profit margin based on market conditions and company experience is 10% of the target sales price. Target sales price per unit of product obtained by the formula target sales price - target profit margin is 67.5 Eur (75 Eur - 7.5 Eur). In that sense, the managers of this company should find the best way to

reduce the price of the product, but also to increase the annual volume of production and sales in order to use the available capacities.

The second level of implementation is reaching the target cost. In order to achieve the target costs, the current information base on the complete process of performing operations in the company and the amount of their costs must first be analyzed. An overview of operations by responsibility centers in the company is provided in Table 1.

Table 1 Overview of operations and actual costs per operation

| Cost Centers | Actual Costs (thousand Eur) | Production / Sales Volume | Cost per Ton (Eur) |
|---------------------------|--------------------------------|------------------------------|-----------------------|
| Raw materials acquisition | 12,000,000 | 700,000 | 17.143 |
| Making clinker | 10,000,000 | 700,000 | 14.286 |
| Finished cement grinding | 8,000,000 | 700,000 | 11.429 |
| Electric power | 7,000,000 | 700,000 | 10.714 |
| Mechanical workshops | 5,000,000 | 700,000 | 7.571 |
| Maintenance | 3,500,000 | 700,000 | 5.000 |
| Marketing services | 4,500,000 | 700,000 | 6.429 |
| Administrative services | 5,700,000 | 700,000 | 8.143 |
| Total cost | 56,500,000 | 700,000 | 80.714 |

Source: Author's calculation adapted from Al-HAshemi & Al-ardawe, 2020.

From the presented overview, it is noticeable that the costs per unit of product are 80,714 Eur. By comparing the amount of actual costs per unit with the amount of target cost per unit which is 67.5 Eur it is clear that the costs incurred by this company are 16% higher than the target cost.

As the given amounts of actual costs are presented on an annual basis, further calculations are aimed at determining the annual (total) amount of the target cost and the annual amount of reduction. The annual amount of reduction can be viewed as a lean reduction or a target reduction. In that sense, the total target cost is the product of the target cost per unit and volume of production and amounts to 47,250,000 Eur (67.5 eur * 700,000 j.). The amount of the lean reduction will be the difference between the annual amount of actual costs and the total target cost and amounts to 56,500,000 Eur – 47,250,000 Eur = 9,250,000 Eur. The amount of 9,250,000 Eur is the value that should be reduced in the coming period at the enterprise level. This amount of lean reduction should be broken down in more detail into the operations and jobs performed in the company. For these purposes, it is necessary to calculate the amount of the target cost of each operation as well as the amount of the target reduction for a specific operation. The target cost of a specific operation is obtained based on the following formula:

$$\text{Target Cost of Activity} = \text{Total Target Cost} \times \text{Actual Cost of Activity} / \text{Total Actual Costs}$$

By applying this formula, for example, to the operation Raw materials acquisition, the amount of the target cost of the operation of 10,035,398 Eur (47,250,000 Eur * 12,000,000 Eur) / 56,500,000 Eur is obtained. The amount of lean reduction of this operation is 1,964,602 Eur, and it is obtained as follows: 12,000,000 Eur - 10,035,398 Eur. Overview of target costs by operations and lean reductions for each operation are given in Table 2.

Table 2 Overview of target cost and lean reduction for each operation

| Supply chain Activities | Actual Costs (thousand Eur) | Target cost | Lean cost | Cost lean per unit |
|---------------------------|--------------------------------|-------------------|------------------|--------------------|
| Raw materials acquisition | 12,000,000 | 10,035,398 | 1,964,602 | 2.8066 |
| Making clinker | 10,000,000 | 8,362,832 | 1,637,168 | 2.3388 |
| Finished cement grinding | 8,000,000 | 6,690,265 | 1,309,735 | 1.8710 |
| Electric power | 7,500,000 | 6,272,124 | 1,227,876 | 1.7541 |
| Mechanical workshops | 5,300,000 | 4,432,301 | 867,699 | 1.2396 |
| Maintenance | 3,500,000 | 2,926,991 | 573,009 | 0.8186 |
| Marketing services | 4,500,000 | 3,763,274 | 736,726 | 1.0525 |
| Administrative services | 5,700,000 | 4,766,814 | 933,186 | 1.3331 |
| Total cost | 56,500,000 | 47,250,000 | 9,250,000 | 13.2143 |

Source: Author's calculation adapted from Al-HAshemi & Al-ardawe, 2020.

Considering that the company is a set of mutually purposefully connected parts, such separation of costs and the amount of reduction by individual operations will be in the function of participation of all parts in achieving the company's goals.

Once the target costs and the amount of lean reduction for each operation have been calculated, it is now necessary to review the costs within each operation and see the potential for reducing them. For the sake of clarity and simplicity of the analysis, as well as due to the need to obtain information that is important for reducing costs, the identified operations performed in the company are divided into two categories of internal and external activities (Al-HAshemi & Al-ardawe, 2020). Internal activities refer to those that the company performs independently and do not depend on suppliers and other participants, such as the production process. External activities are those activities that the company performs in cooperation with its partners and can view them as Upstream Activities and Downstream Activities. Within each group of activities, key operations and costs divided into variable and fixed will be identified.

Internal activities, as we have stated, refer to the key production process in the company which is performed in two operations, Making clinker and Finished cement grinding. In addition to the costs of these two operations, the costs of internal activities include Electric power, Mechanical workshops and Maintenance. As Making clinker and Finished cement grinding are operations that add value and have a significant role in the delivery of the final product, there is further division of costs within these operations into variable and fixed. An overview of variable and fixed costs within these operations is given in Table 3.

This cost overview allows you to see exactly what the costs are within each operation. Based on this overview of costs for key operations, managers come to the conclusion that first of all we need to shorten the idle time of machines, further train workers to increase productivity and shorten waiting times, outsource certain raw materials, improve cooperation with recipients in terms of obtaining more favorable prices for larger quantities of ordered raw materials and the like.

These conclusions were reached on the basis of the fact that the operations Making clinker and Finished cement grinding are oriented primarily on the machining of raw materials, so the high share of fixed wage costs is unjustified. The reason for the high costs is that the company has hired more engineers and technical workers than they need. Earnings costs should be determined based on the value provided by the activities provided.

Table 3 Variable and fixed costs within Making clinker and Finished cement grinding

| Cost elements | Making clinker | | Finished cement grinding | |
|----------------------|--------------------------------------|--------------------------|--------------------------------------|--------------------------|
| | Total Actual Costs (thousand Eur) | Ratio to total cost % | Total Actual Costs (thousand Eur) | Ratio to total cost % |
| Total variable costs | 3,900,000 | 39.00% | 4,970,000 | 62.13% |
| Direct wages | 800,000 | 8.00% | 1,600,000 | 20.00% |
| Indirect wages | 600,000 | 6.00% | 1,200,000 | 15.00% |
| Commodities supplies | 1,400,000 | 14.00% | 1,210,000 | 15.13% |
| Service supplies | 800,000 | 8.00% | 800,000 | 10.00% |
| Other costs | 300,000 | 3.00% | 160,000 | 2.00% |
| Total fixed costs | 6,100,000 | 61.00% | 3,030,000 | 37.88% |
| Salaries | 2,100,000 | 21.00% | 900,000 | 11.25% |
| Commodity Supplies | 1,500,000 | 15.00% | 740,000 | 9.25% |
| Service supplies | 1,200,000 | 12.00% | 660,000 | 8.25% |
| Interest and Rents | 600,000 | 6.00% | 280,000 | 3.50% |
| Depreciation | 500,000 | 5.00% | 350,000 | 4.38% |
| Other costs | 200,000 | 2.00% | 100,000 | 1.25% |
| Total | 10,000,000 | 100.00% | 8,000,000 | 100.00% |

Source: Author's calculation adapted from Al-HAshemi & Al-ardawe, 2020.

Also, the raw materials needed to perform operations are distributed based on the number of machine hours and not based on the actual capacity of the machine, which leads to higher variable and fixed costs of operation Commodities supplies, whose share in total costs ranges from 10-15%.

The second group of activities that take place in the company are external activities and we will look at them as Upstream Activities and Downstream Activities. Raw materials acquisition is a key operation within Upstream Activities. Within this operation, various necessary raw materials are added, such as limestone, clay, iron, water, etc., which are necessary for further operations. These costs otherwise make up 20% of the total costs. In Table 4. the costs of this operation are divided into variable and fixed, as well as the percentage share of these costs in the total costs of this operation.

Table 4 Overview of variable and fixed costs within Raw materials acquisition

| Cost elements | Total Actual Costs (thousand Eur) | Ratio to total cost % |
|----------------------|--------------------------------------|--------------------------|
| Total variable costs | 5,380,000 | 44.83% |
| Direct wages | 1,200,000 | 10.00% |
| Indirect wages | 800,000 | 6.67% |
| Commodities supplies | 1,900,000 | 15.83% |
| Service supplies | 1,000,000 | 8.33% |
| Other costs | 480,000 | 4.00% |
| Total fixed costs | 6,620,000 | 55.17% |
| Salaries | 1,800,000 | 15.00% |
| Commodity Supplies | 1,400,000 | 11.67% |
| Service supplies | 1,200,000 | 10.00% |
| Interest and Rents | 1,300,000 | 10.83% |
| Depreciation | 540,000 | 4.50% |
| Other costs | 380,000 | 3.17% |
| Total | 12,000,000 | 100.00% |

Source: Author's calculation adapted from Al-HAshemi & Al-ardawe, 2020.

By further analyzing the costs within this operation, company managers identify potential opportunities for improvement. They relate to: eliminating the cost of unused capacity, reducing the cost of raw materials, reducing the cost of services such as maintenance and transportation, increasing productivity and reducing the number of employees. In order to achieve potential improvements, the managers focus their attention primarily on the following costs: Commodities supplies, Service supplies and Salaries.

The costs of Commodities supplies refer to the costs of collecting raw materials necessary to perform operations such as fuel, spare parts, electricity and the like. The share of fixed costs of Commodities supplies is about 12 and is high if we compare it with the variable costs of this category. For the amount of variable costs of Commodities supplies managers of this company have entered into cooperation agreements with suppliers, which is not the case for the amount of these fixed costs. In this sense, managers must negotiate with suppliers and ensure lower raw material prices.

The costs of Service supplies relate primarily to maintenance, equipment rental, transportation, telecommunications, insurance and the like. Their percentage is higher if we take into account that they are mainly related to maintenance. Even when contracting these costs, managers must contact suppliers and enter into contracts that will ensure the provision of quality services for a better price instead of the company performing these tasks independently.

In the end, the amount of salaries within fixed costs and indirect salaries within variable costs exceed the amounts of salaries received by employees who are directly involved in the process. A significant difference in salaries is a cost that does not add value if we take into account that all employees perform the same tasks, either definite or indefinite.

Observing the costs of Downstream Activities, which in this company relate to Marketing services and Administrative services, one can notice their large percentage share. Based on the information on how these processes are performed and what problems arise during their performance, the following measures for potential improvements have been proposed (Al-HAshimi & Al-ardawe, 2020):

- Transportation logistics and reduce costs,
- Careful selection of sales agents and negotiate with them on the method of payment whether cash or deferred to meet the supplier's payment,
- On-time delivery to reduce inventory costs to a minimum,
- Improving the financial system and information flow by using IT system and
- Concern to the efficiency of personnel and opting between permanent employee or outsourcing, especially for quality inspection and product development.

The ability and efficiency of the company manager will be especially expressed when it comes to achieving lean reduction. For these needs, companies can use very efficient target costing techniques such as value engineering, value analysis, kaizen costing and quality function deployment and numerous lean techniques. In any case, care should be taken to ensure that the product achieves primary functionality that will satisfy the desires of consumers at an acceptable cost.

The last level of application of target costing is continuous improvement. This step is especially important when reaching the target cost because TC is a continuous process. Also, the process of business improvement and cost reduction does not end with the product entering the production phase but is continuing through small and continuous improvements to achieve maximum efficiency. Continuous improvements are achieved by applying the Kaizen technique. Kaizen implies small incremental improvements at

every step before making major innovations. When continuously improving, care should be taken (Al-Maryani, 2015):

- That human resources are the most important resource of the company,
- That there are small gradual improvements before radical changes
- That changes are based on continuous business monitoring and properly measured performance.

It is better to improve the company's business immediately by 10%, than to wait for the moment when the business can be 100% improved. Waiting for the moment to come when the business can be fully improved requires a lot of time, and market conditions are relentlessly changing, so the company can be late with reactions to demand and thus lose the race with the competition.

CONCLUSION

The extended application of the lean concept from production to the whole company, and later outside the company, led to the creation of a lean supply chain. In the lean supply chain, business is organized so that the value required by the user of that value is delivered as soon as possible. Users of value, in addition to consumers, are organizational parts within the company, as well as partners upstream and downstream in the chain. The goal of the extended application of the lean concept is to eliminate all forms of waste, increase product quality, deliver the required value on time, quickly respond to requests and the like. In order to be able to measure their financial benefits from the application of the lean concept, managers apply a more modern concept of calculation and costing such as target costing.

Target costing is a cost management concept that aims to manage the costs of all products through the design phase. At the same time, with the help of TC, it is ensured that the product is profitable enough to justify its production. In this sense, it can be used as a profit planning mechanism. Target costing is not limited to the selling price of a product; it is an approach that can be applied to the entire supply chain. TC is much more than a cost accounting system because it respects the wishes and requirements of consumers, focuses on product design, involves the cooperation of employees from different fields and departments not only within the company but throughout the supply chain to minimize costs throughout the product life cycle.

In order to achieve a competitive position in a modern business environment, it is necessary to combine two or more concepts while exploiting their advantages. In this sense, a comparative analysis of the lean concept and target costing has shown the key aspects of importance to consumers common to both concepts and that their combination can lead to business improvement.

Thanks to the application of target costing and certain elements of the lean concept, companies will be able to:

- Define the selling price of products at a level that can give them a competitive advantage;
- Based on the selling price, plan the profit and the rate of return on the engaged funds;
- Get acquainted with the costs incurred in the company in different phases, determine the cost limits for each operation and on the basis of this information the required value of the product within the defined cost limits;

- Identify and manage costs not only at the production stage but at all stages of the process;
- Determine the cause-and-effect relationships between operations and jobs that take place in the company and resource consumption;
- Perform targeted cost reduction and efficiency gains through the application of target costing techniques and the lean concept;
- Develop close and partnership relations both between the employees in the company and with other companies in the supply chain;
- Carefully select partners that will meet the requirements in terms of quality, price and delivery time;
- Improve profitability and long-term business efficiency;
- Reduce business risk and encourage innovation;
- Provide a basis for strategic decision making and continuous performance improvement.

A well-established lean concept and target costing will ensure that teams inside and outside the company work together to meet customer requirements but also to meet each other's requirements while increasing the value created and the performance of the company and partners. To achieve this, it is necessary to carefully consider the entire business process, identify key processes and their costs and resources, as well as select partners who also apply these concepts and take into account the value that is delivered. All these requirements need to be harmonized with the defined sales price or target costs, value orientation and continuous improvement in the lean supply chain.

REFERENCES

- Al-HAshimi, A., & Al-ardawe, A. (2020). Implementing Target Costing within the Supply Chain to Lean Costs: Case Study in Najaf Cement Factory. *Journal of Xi'an University of Architecture & Technology*, 1308- 1320.
- Al-Maryani, M. A. (2015). The strategic impact of integration between target costing and continuous improvements techniques in achieving cost reductions and competitive advantage: An analytical study. *Journal of Accounting, Auditing, Economics and Finance*.
- Antić, Lj., Stevanović, T., & Novičević Čečević, B. (2019). *Koncepti obračuna i upravljanja troškovima u lean poslovnom okruženju [Concepts of cost and management accounting in a lean business environment]*. Niš: Ekonomski fakultet Niš.
- Antić, Lj., & Novičević Čečević, B. (2018) *The (no)alignment of costing and enterprise management concepts with lean business concept*. Contemporary issues in economics, business and management – EBM 2018, Faculty of Economics, University of Kragujevac, 383- 391.
- Antić, Lj., & Novičević B. (2011). Target Costing for The Purpose of Generic Strategies' Realization, *Facta Universitatis – series Economics and Organization*, 8(3), 247-262.
- Charron, R., Harrington, J., Voehl, F., & Wiggin, H. (2015). *The Lean Management Systems Handbook*. NY: Productivity Press.
- Cooper, R., & Slagmulder, R. (1997). *Target Costing and Value Engineering*, Productivity Press, Portland OR. http://www.tx.ncsu.edu/jtatm/volume2issue4/articles/hergeth/39_02_full.pdf
- Gallone, P., & Taylor, D. (2001). From value stream mapping to the development of a lean logistics strategy. In *Manufacturing Operations and Supply Chain Management, the Lean Approach*. UK: Thomson learning.
- Harris, C., Harris, R., & Streeter, C. (2011). *Lean Supplier Development*. NY: Productivity Press.
- Innes, J. (2004). *Handbook of Management Accounting*. CIMA Publishing.
- Jeffrey, P. W. (2004). *Lean Supply Chain Management: A Handbook for Strategic Procurement*. NY: Productivity Press.
- Kovacheva, A. (2010). *Challenges in Lean implementation Successful transformation towards Lean enterprise*, 1–58. Retrieved from <http://pure.au.dk/portal-asb-student/files/9093/ak83188...pdf>
- Malinić, S. (2008). Upravljačko računovodstveni aspekti Kaizen costinga-a [Management accounting aspects of Kaizen costing]. *Računovodstvo 3-4*, 3-13.

- Novićević Čečević, B. (2016). *Upravljačko-računovodstvena podrška menadžmentu preduzeća u lean poslovnom okruženju [Managerial accounting support to the enterprise management in a lean business environment]*. Unpublished Phd Thesis, University of Niš, Faculty of Economics.
- Novićević Čečević, B., & Djordjević, M. (2020). Lean accounting and value stream costing for more efficient business processes. *Ekonomске teme*, 58(4), 573-592. <https://doi.org/10.2478/ethemes-2020-0032>
- Ugochukwu, P., Engstrom, J., & Langstrand, J. (2012). Lean in the supply chain: a literature review. *Management and production engineering review*, 3(4), 87-96.
- Vasile, E., & Ion, C. (2013). Target cost – tool for planning, managing and controlling costs. *Romanian Journal of Economics*, 114-127.
- Ward, Y. C. (2003). *Cost Management and Accounting Method to Support Lean Aerospace Enterprises*. Retrieved from http://www.bath.ac.uk/management/aerospace/pdf/Lean_Measurement.pdf
- Womack, P., & Jones, D. (1994). From Lean Production to the Lean Enterprise. *Harvard Business Review*, 93-103.
- Zengin, Y., & Ada, E. (2010.). Cost management through product design: Target costing approach. *International Journal of Production Research*, 48(19), 5593-5611.

PODOBNOST TARGET COSTINGA ZA POTREBE UNAPREĐENJA LEAN LANCA SNABDEVANJA

Konkurentsku prednost možemo da posmatramo kao superiornost nekog od učesnika na tržištu da pravilnom upotrebom resursa i iskorišćavanjem ključnih kompetencija isporuči veću vrednost od konkurenata a da pri tome ne ugrozi kvalitet i funkcionalnost proizvoda. U tom smislu, računovodstvo, a posebno upravljačko računovodstvo, uspešno odgovara na zahteve menadžera za obezbeđivanjem informacija koje će biti adekvatna podrška menadžerima u realizaciji postavljene strategije. Lean koncept i target costing samo su neki od koncepta koji svojom strategijskom orijentacijom mogu biti dobra podrška menadžerima. Cilj rada je da ukaže na sličnosti i razlike lean koncepta i target costinga i da prikaže na praktičnom primeru kako se iskorišćavanjem prednosti navedenih koncepta postižu unapređenja poslovanja u lancu snabdevanja.

Ključne reči: lean koncept, target costing, redukcija troškova, unapređenja