



Role of Value Stream Analysis in Cost Management and Improving the Competitive Advantage – An Empirical Study

Enaam Ghadeer al-Musawi^a, ^aFaculty of Administration and Economics / University of Kufa, Email: Inaamm.ghadeer@upkufa.edu.iq

Industrial companies generally seek to achieve profits by improving their competitive position and increasing their market share among other competitors. The present study aims to demonstrate the role of value chain analysis in the rationalisation of costs in industrial companies. It also aims to demonstrate the effect of applying the value chain analysis method in improving the competitive position of industrial companies and increasing these companies' market share. The actual data in the General Company for Rubber and Tires Industries (2018) was approved as a case study to achieve the research objectives. The study concluded that the application of the value chain analysis method leads to the identification of waste deposits in the production resources and the management process towards disposal of the citizen either through the percentage of exploitation of production capacity or by excluding costs that do not add value from the point of view of the customer. This move leads in turn to the positive impact on the price policy of the company by providing a competitive advantage of the cost, reflected in the reduction of selling prices and thus achieve competitive advantage and increase the market share of the company's products. The competitive advantage of the company is a suitable source to outperform its competitors in the tire industry by producing better products at a lower cost. The results also show the company's ability to achieve its objectives of producing high-quality products at low cost to meet the needs of consumers.

Key words: *Value chain analysis, competitive advantage, cost management, lean accounting, pricing policies.*

Introduction

The good management of costs in companies in general and especially industrial companies in light of the recent economic trends, companies are looking for a competitive advantage to face the fierce competition between them. As the traditional methods to determine the costs is no longer appropriate and does not provide sufficient information, which necessitated with the emergence of new tools and methods of accounting called (Lean Accounting). This depends primarily on the use of the elements of production in a graceful or (rational), which reflected positively on the economy in expenditure (costs). The adopted data helps to improve efficiency in making the right decisions. Lean accounting is one of the most important contemporary manufacturing systems that have achieved good results for organisations. The basic idea behind this concept is to remove all forms of waste resulting from manufacturing processes that do not add value to the product offering the best customer service, with a focus on finding the value of each unit produced in order to determine the best price to be competitive among many of the competing companies, achieving this through the use of tools and methods of Lean accounting.

It is very important to provide company managers and users of financial information with reports to be prepared at the end of each period on revenue from sales of products and services and any costs added to the production process. Companies must adopt a pattern of thinking during the production stages until these reports are prepared. Companies tend to gain competitive advantage and reduce wasteful production during the production process with the help of a lean production system. This study aims to explain the role of applying chain analysis as a major tool utilised in lean accounting to reduce production costs and enhance the competitive advantage of companies. This study is adopted on a case study in Najaf Tires Factory, one of the companies of the General Company for Rubber Industries and Tires using the financial and cost data for the lab for the fiscal year 2018.

Literature Review

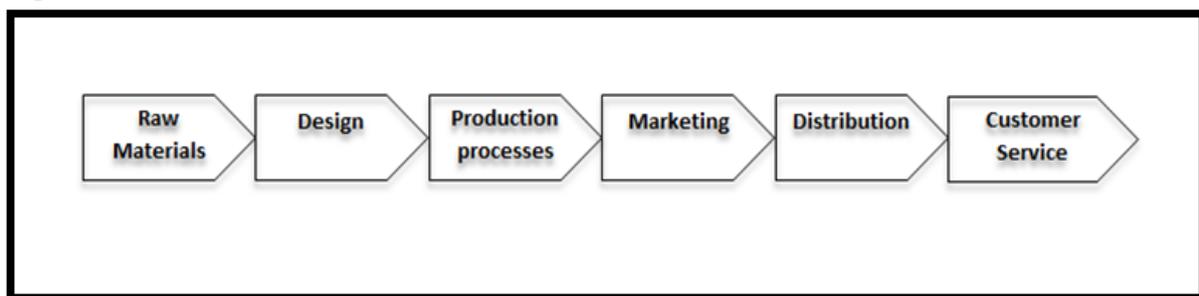
Value Chain Analysis

Value chain analysis is a relatively modern tool in managing production costs. Accounting literature has steadily increased using this technique in different contexts. In this context, Horngren defined the value chain as "a set of activities and successive functions that add value or benefit to products or services from the beginning when they were just ideas to the end when consumed by customers and through design, production, marketing and distribution." (Hungarian: 2000). Blocher identified it as "an important tool for strategic analysis used by the company's management to identify areas of utility, value to customers and work to reduce product costs throughout their life cycle in order to gain a better understanding of the competitive advantage of the company and its links with its suppliers and customers." (Blocher,

2010). As explained (Macmillan & Tampoe) "It shows how the product moves from the raw material stage to a final product, so the organisation divides it into groups of activities. Each part of the activities of the value chain contributes to the total value provided to the customer, and also contributes to part of the total profits, because the basic concept of the value chain is to add the largest possible value at the lowest possible cost, and measure the amount of contribution to the value provided and profit per part (Hines et al., 1998), Macmillan & Tampa, 2000).

Figure 1 below illustrates the work of the value chain:

Figure 1. Value Chain Action Planner



(Horngren et. Al, 1997:4)

The value chain analysis method seeks to achieve a set of objectives (Gereffi.1999.37-70) with the following cost elements:

1. Increase the concentration of interests of all parties involved in the form of a chain of interrelated activities starting from the supplier and ending with the end consumer.
2. If the results are positive for the common sections within the value chain, this is due to the development of competitive value chains within any activity or industry.
3. The preparation of the joint work platform between the supplier and the consumer helps the management in making decisions, which facilitates the completion of industrial activities and productivity, according to the wishes of the consumer, where the work is determined continuously to ensure the conduct of activities and operations efficiently and supports the interrelated parties within the value chain. (Gereffi.1999: 37)

The value flow analysis focuses on these cost elements to identify waste sources and reduce their original costs as well as pricing value flows within the organisation's core process. In accounting literature many studies have been conducted to explain the implications of implementing the cost of, value, flow under health care (Shazali et al. ,2013), (Lopez et al. ,2013), (Gracanin et al. ,2014), (Cochran et al. , 2014) (Winkel et al. ,2015), (Tortorella et al. ,2016) (Lacerda et al., 2016) (Almusawi et al, (2019) For example, (Winkel et al, 2015), argues that value stream mapping in health care is a contribution tool that offers an opportunity to integrate the work environment and enhanced performance. In the same context, (Tortorilla

et al. , 2016) suggest that the use of value stream planning to analyse health care activities systematically results in a reduction in the level of inventory, waste, and the main time of production. On the other hand, (Van der Steen and Telema, 2018) argue that the cost of, value flow can be seen as a tool for controlling production quality and the efficiency of procedures as well as improving continuous improvement processes. However, the utility and affordability of health care costs remain unclear, and there are some interesting questions and related problems to be addressed despite the growing reliance on weak accounting instruments in health care institutions.

Value-Stream Mapping

The process of estimating the flow cost begins with Value Flow Planning (Cengiz,2011:48). Value flow mapping developed in 1995 is expressed as finding a suitable method for researchers and practitioners who wish to identify the waste that could occur as a result of the tools used for the cost of value flow (Hines et. al, 1998:25). By value flow mapping, A plan is created for the flow design that can be expressed as a value stream to meet customer requirements. The production process is also applied in the direction of the plan that was created. Value Flow Mapping is a methodology used to identify the sources of value and waste generated in the value flow and to stimulate more than one process (Aksoylu,2014: 265). In the context of these interpretations, value-flow mapping can be expressed as a simple technique practised by companies to analyse the flow of goods and to provide products and services to customers (Maskell & Katko, 2007: 48).

In the value flow mapping method, which is used to identify the causative sources of waste and sewage, there are a number of activities that must be carried out by companies. The first stage of these activities is to determine the value of the flow of the goods or services chosen by the customer. After the completion of the identification process, in the second step, the value flow information is collected and the current state mapping is drawn to be used to design the next step. As a result of checking the current status map, the product mix is selected and future status is set in Step 3. In the final stage after the three steps mentioned, the activity plan is prepared for the flow of the operator value and the implementation process is carried out according to the plan(Birgün et. al,2006: 49 - 50).

Value Chain Analysis And Achieve Competitive Advantage

The increase in the level and size of the activities of the company and the diversity of its products has led to increased competition, which makes the company search for a larger market share to ensure its continuation, As all business organisations seek to advance past their competitors through full knowledge of all their competitors in the market in order to make their products distinguished from others through quality, high technology and marketing. This is

done in order to create a competitive advantage for the product or to add new superiority to its competitors to win buyers of the commodity more. In this context, Kotler defined competitive advantage as "the ability of the company to perform its work in a way that is difficult for its competitors to imitate it, and since the competitive advantage is seen mostly from the point of view of customers to achieve their advantage, so the company must be able to create or develop value for the consumer (Customer Value – Creation). To achieve greater efficiency, thus obtaining a competitive advantage and thus leading to increased profits (Kotler 2000). Mohsen & Al Najjar (2009) explained that competitive advantage aims at a system that has a unique or distinctive advantage that outperforms competitors through the value of the customer in an efficient and sustainable manner, where it can be continuously maintained, presented or presented better than others. Ghemawat & del Sol, 1998, 3 define that competitive advantage is "the ability to conduct activities at the lowest level of cost compared to competitors, or the ability to discriminate and control exceptional prices above the additional costs to do so". During the emergence of the revolution of information and communication this is no longer limited to reading and writing only, but must evolve to be able to analysis and creativity and deal with many developments such as the use of computers and the Internet and other things modern and sophisticated, In this development, the need for markets, customers and products of high quality and quality is recognised to be produced at the lowest possible cost to achieve a competitive ability that enables the organisation to progress on all its competitors.

There are basic pillars that the organisation must provide to achieve competitive advantage:
The organisation's ability to imitate: This method is one of the easiest and most used methods in the early stages of industrial development, where the organisation produces similar products for imported products and then puts them in the market in large quantities and at a competitive price. This is known as "Reverse Engineering" and this means obtaining a final product from the market, then dismantling it, analysing it and modifying it as possible, and then selling it to the market at a competitive price (Abuthakeer et al., 2010)

The organisation's ability to develop: After obtaining all the information about the product and then imitating it and collecting the responses of the consumers it comes to the development stage that lies with the Research and Development Center. The functions of this centre:

- Developing product quality such as (canning, value-added).
- Development of raw materials used to become the best quality and less expensive.
- Improving manufacturing workshops and working methods become faster, more productive and less expensive.
- Increase distribution outlets and search for new distribution methods to maximise profitability.

The organisation's ability to innovate: Innovation is one of the most important strategies that an organisation must have. It has many benefits, including:

- Innovative and innovative features with all consumers.

- No one can acquire it
- It can only be reached after some time.

Where the search for geniuses and talents with innovative capabilities to be supported and sponsored through the development programs and seminars and conferences.

Data and Method

The study is based on the quantitative approach as a research methodology. The society and the sample of the study are selected through the selection of a general company for rubber and tire industries that produce more than one product using the case study method. The financial and cost information for the company for the fiscal year 2018 will be taken as a basis for reaching the results.

Company Overview for Rubber Industries and Tires

The General Company for Rubber Industries and Tires is one of the companies affiliated to the Ministry of Industry and Minerals located in Al-Haidariyah district on the road between Najaf and Karbala 160 km south of Baghdad. Founded under the incorporation certificate numbered (38) of 31/12/1997 based on the provisions of Article (6) of the Companies Law No. 22 of 1997 with a capital of (2,820,000,000) two billion eight hundred and twenty million Iraqi dinars, Was subsequently amended to reach (5.029.000.000) five billion nine hundred and twenty million Iraqi dinars and was started to be established in 1989. Licensed by Dunlop English company. Dunlop is committed to providing technical knowledge, supervising the experimental operation, determining the technological course and installing the integrated technological specifications for the manufacture of the frame and its final form, and ensuring the quality of the frame according to the contracted specifications. Because of the outbreak of the first Gulf War in 1990, the project company pulled out before it was completed. A large part of the company's machinery and equipment remained under construction in foreign ports and factories. After the end of the war, resumed the work of operating what can be operated from the machines and equipment available by the implementation of the new tire project. Some production lines were operated by the Iraqi cadres in this body which installed the machines and the complete production lines and made a lot of changes and modifications to the technological paths and deleted And the development of some of them under the availability of machinery, equipment and raw materials. The first tire was produced by the mark (Diwaniyah) on 10/3/1993, then changed the brand and produced the first frame of the mark (Babylon) on 10/7/1993, the company consists of laboratories and production and administrative divisions.

Stages (Activities) Tire Production

1 - Preparation: This consists of two stages; The first stage is the primary mixture (Master Batch), where the raw materials withdrawn from the stores of raw materials according to the specifications of the technology section in the pastry at a certain temperature. These materials are mixed for a certain period of time until they are homogenised and then turned into squeezer to mix them together, and then cut into long strips that are sent to the cooling line for the purpose of cooling and turning to the next stage. The second stage is the final mixture (Batch): The first mixture (Master Batch) received from the previous stage enters the dough again until it is homogenised and is also cooled and then wrapped and sent to the laboratory for examination and when complying with the specifications sent to the rest of the required stages.

2 - Formation: is the conversion of dough received from the previous stage to Semi-finished parts is the part touching the ground (Tread) and the sidewall of the tire (Side).

3 - Cladding: This section consists of two stages:

The first stage is the cladding of iron rings (Bide): Bide Division withdraws the paste and the cladding the iron rings. Wire loops are used in these rings of 0.96 mm. These wires are covered by the size of the tire and its type. The second stage is cladding iron rings wires (Sealastic), which removes the dough from the preparation section and is sent to the section of the pipe for filtration and removal of gravel and dirt that stick to this mixture when cladding wire. The wires of the iron rings are coated with four-wire threads with each other for strengthening the tire construction.

4- Textile: consists of three production lines:

The first stage: cladding of the Textile (Calendar) From the preparation section, the dough is inspected from the quality control and entered into the crusher for homogeneity and increase its vitality because it is cold and needs high energy to re-homogeneous and then turned into the feeder (extruder). The textile is woven from the raw material stores and then converted to a textile winding machine at certain lengths on large rollers (bobbins) ranging in length from 250-150 m. It is then transported to the scissors line for cutting according to the required sizes.

The second stage: Cushion Line, The dough is removed from the preparation section and used to produce the Cushion interior pad for both tires according to its size.

The third stage: Scissor line, this is where the coiled textile is cut on the rollers according to the size of the desired tire and wrapped on canvas rollers (bobbins) and then sent to the construction section. At the end of this stage, the semi-finished parts are ready to be sent to the construction section to construct the tire or the so-called green tire. These parts are:

- Rubber tapes (Tread)
- Sidewall of the tire (Side)
- Rubber coated textile

- Rubber-coated textile tapes
- Rubber coated rings (Bide)
- Internal Cushion

5 - Construction: The semi-finished parts of the previous product sections are withdrawn to build the green tire in two stages:

The first stage: when Semi-finished production reaches to the machines of the first stage is built, half parts are manufactured and is the internal Cushion, rubber-coated wire tapes, rubber-coated metal rings (Bide) and a side wall (Side).

The second stage: The semi-finished parts are obtained to produce rubber tapes (Tread) and rubber-coated wire tapes as well as a bandage , and add it to the green tire and then become a tire ready for transport to the subsequent sections is the installation section (Tire curing) for the purpose of beating.

6 - Installation (Tire curing): The installation stage begins by coating the green tire with a solution from the outside to prevent adhesion to the mould and ease of sliding after completion of the installation cycle, The coating of the tire inside helps prevent the adhesion of the green tire to the rubber containers (Bladder) Inside the piston and prevent the appearance of textile cracks in the inlet cushion. After the completion of the coating of the tire enters the pistons that are under certain operating conditions, where the installation cycle for a certain period of time determined according to the technological course, which varies from one tire to another.

Results

This study shows the results of applying the value chain analysis method to the cost level of the company's products compared to the actual costs achieved in 2018 as well as its impact on its price policies and in achieving competitive advantage.

The Reality of the Costs in the Company

The company uses the consolidated accounting system to regulate and record its accounts. For the cost of a single product, it consists of the total cost of direct raw materials and the cost of direct and overhead cost. The company distributes the indirect costs of the service centres to the production centres according to specific bases, that depend on the employees' experience or according to the requirements of the unified accounting system. As for the accounting treatment of the initial costs do not differ from the traditional systems, we will only offer a list of products for the year of the study is 2018, which includes 10 types of tire products.

The factory follows the method of arbitrary redistribution in allocating the costs of the service departments to the production divisions. This, in itself, creates fundamental flaws in the current

cost system. Table 1 shows tire production data and basic costs extracted from the company's records.

Table 1: The cost of manufacturing each of the products of the company for 2018

tire size	Fixed costs		Total fixed costs	Variable costs			Total variable costs
	Salaries per tire	Depreciation		raw materials	spare parts	Commoditized Supplies	
12/165	7106.2053	1776.551316	8882.75658	4913.274733	2220.689145	3969.481847	11103.44572
12/500	7893.32	1973.330011	9866.650055	5457.490811	2466.662514	4409.159243	12333.31257
14/65/185	8702.6071	2175.651768	10878.25884	6017.03692	2719.56471	4861.221918	13597.82355
15/65/205	10060.657	2515.164305	12575.82152	6956.00128	3143.955381	5619.820243	15719.7769
15/65/195	10127.174	2531.79349	12658.96745	7001.991371	3164.741863	5656.976079	15823.70931
14/70/195	10797.884	2699.47111	13497.35555	7465.72479	3374.338888	6031.630762	16871.69444
14/C/195	11457.509	2864.3772	14321.886	7921.793193	3580.4715	6400.092806	17902.3575
16/650	16853.125	4213.281296	21066.40648	11652.35608	5266.60162	9414.050395	26333.0081
16/750	23873.967	5968.491824	29842.45912	16506.6102	7460.61478	13335.84892	37303.0739
30-16	106679.55	26669.88768	133349.4384	73758.90812	33337.3596	59590.53029	166686.798
Total	213552	53388	266940	147651.1875	66735	119288.8125	333675

The company based in the calculation of the cost of their products on the weight of materials as the basis for the distribution of costs for the cost of materials and wages, As for overhead costs on the centres of production cost according to fixed ratios. The rates of indirect overhead costs on productive service centres on the basis of pre-defined indicators, Begins with the distribution of indirect costs to the three Factor, the tire factory, the Rickel factory and the rubber products factory at fixed rates. These costs are then distributed to factory products at

fixed rates. Table (2) shows the list of manufacturing costs in addition to the marketing and administrative expenses of each unit produced according to the traditional cost system.

Table 2: Total costs per product

tire size	The cost of manufacture	Marketing expenses	Administrative expenses	costs Total
12/165	19986.2023	1776.551316	444.137829	22206.89145
12/500	22199.96262	1973.330011	493.3325027	24666.62514
14/65/185	24476.08239	2175.651768	543.9129419	27195.6471
15/65/205	28295.59843	2515.164305	628.7910762	31439.55381
15/65/195	28482.67676	2531.79349	632.9483725	31647.41863
14/70/195	30369.04999	2699.47111	674.8677776	33743.38888
14/C/195	32224.2435	2864.3772	716.0943	35804.715
16/650	47399.41458	4213.281296	1053.320324	52666.0162
16/750	67145.53302	5968.491824	1492.122956	74606.1478
30-16	300036.2364	26669.88768	6667.47192	333373.596
Total	600615	53388	13347	667350

After determining the cost of producing one unit of the company's products according to the traditional cost system, the profitability of one unit per product of the company can be indicated. Table (3) shows the partial income statement for each unit according to the company's traditional cost system with a margin of 10-15%.

Table 3: cost per unit with the addition of a profit margin ratio of total costs

Selling price with profit Ratio	Profit margin	Profit	Total unit cost	production amount	tire size
24500	0.1	2220.689145	22206.89145	10000	12/165
28000	0.12	2959.995017	24666.62514	80000	12/500
31000	0.11	2991.521181	27195.6471	27000	14/65/185
36000	0.14	4401.537533	31439.55381	26000	15/65/205
36500	0.15	4747.112795	31647.41863	26000	15/65/195
38500	0.13	4386.640554	33743.38888	70000	14/70/195
40500	0.13	4654.61295	35804.715	2500	14/C/195
61000	0.15	7899.90243	52666.0162	2500	16/650
86000	0.14	10444.86069	74606.1478	2000	16/750
367000	0.1	33337.3596	333373.596	2500	30-16
			667350	248500	Total

Apply a Value-Chain Analysis Method In The Company

In this section, we will discuss the lean accounting tools that can be applied in the General Company for Rubber Industries and Tires. The activities of tire production will be identified as follows:

First: Draw a map of the value stream: A map of the value stream of the total value chain shall be drawn from the receipt of the raw materials until it is delivered as the finished product to the warehouses of finished materials. To draw the map of the value stream, several points should be specified, including the following:

- 1- Production Cycle: Table 4 shows the time of the production cycle, number of Orders and number of workers per operation within the production stages of the production one dough of 190 kg.

Table 4: Value Stream Map Data

n	Activity	Cycle time / min	number of Orders	number of workers
1	Preparation	1	20	61
2	Formation	1	90	60
3	Cladding	1	25	38
4	Textile	1	30	60
5	Construction	1	40	94
6	Installation	1	20	63
	Total		225 minutes = 3.75 hour	376

2. Time available for production: The time available for production per day is less than the stops that occur in the factory. These stops, either sudden stops or periodic stops, which are planned, through co-operation and interviews show that the time of these stops is two hours per day and since the working day is 8 hours, available time :

Time available = 8 hours - 2 hours = 6 hours

Time available for each process is determined within the production stages, and this is the sum of the available time multiplied by the number of workers in each process:

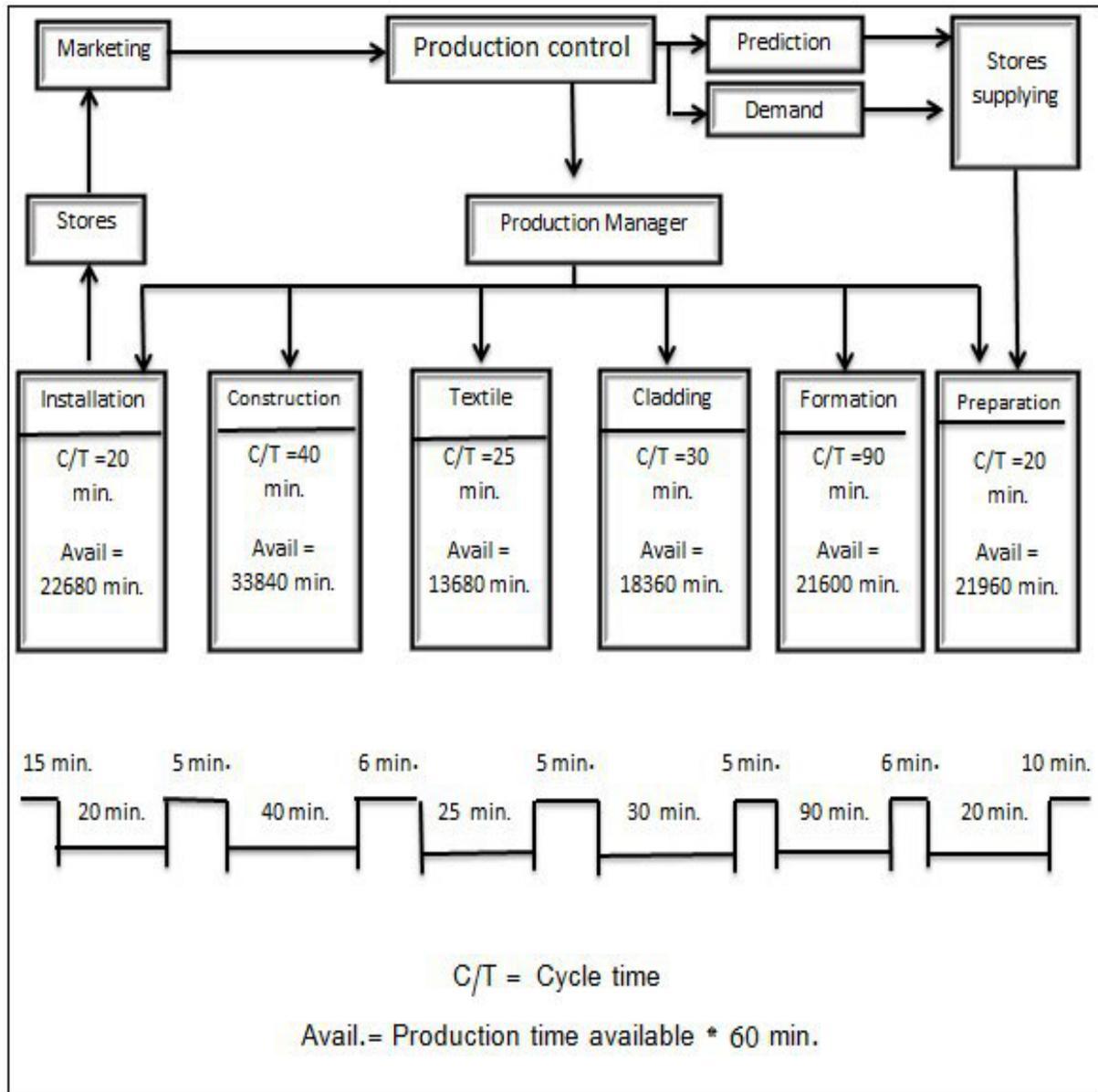
Time available for activity = Production time available × Number of Workers for the same activity

Table 5: Time available for activities

n	1	2	3	4
n	Activity	Time available / hour	number of workers	Time available for activity / hour(2 x 3)
1	Preparation	6	61	366
2	Formation	6	60	360
3	Cladding	6	38	228
4	Textile	6	60	306
5	Construction	6	94	564
6	Installation	6	63	378
	Total		376	2202

A value stream map can be drawn up for the General Company for Rubber Industries and Tires.

Figure 2: A map of the company's value stream



3. Waiting times: Waiting time includes all lost times between activities such as transmission, conversion and material waiting time between operations, through the value flow map in the Figure (2), showing waiting times between operations.

Waiting times = 10 + 6 + 5 + 5 + 6 + 5 + 15 = 52 minutes

4. Number of workers required in each operation:

In accordance with lean accounting, the number of Workers required in each production process is calculated. Lean accounting considers that there is a surplus of workers. Therefore, the number of Workers in each process will be narrowed according to the following equation: (Krajiweski, 2007,270).

Thus, the number of workers in the production department can be reduced according to the table (6):

Table 6: Number of employees according to lean accounting

department	Actual number	According to lean accounting	Difference
Preparation	61	5.5	57
Formation	60	25	41.25
Cladding	38	9.8	52.7
Textile	60	11	29.8
Construction	94	7	88.7
Installation	63	5.2	59
Total	376	63.5 workers	312.5 workers

According to lean accounting, there are 312.5 surplus workers whose salaries and entitlements are charged at the cost of one unit and thus cause a total cost increase, leading to a loss for the company.

The effect of applying value chain analysis on competitive position

Based on the above and relying on the technical estimates and marketing studies of the General Company for Rubber Industries and Tires, the reduction of production costs and selling prices will increase the market share of the company's products. Table (7) shows the percentage of idle capacity and its potential for exploitation, according to the new subsequent price policy.

Table 7: Partial income statement for each product

Products	selling price	Unit cost	Profit	Profit Ratio
12/165	20000	18000	2000	10%
12/500	23000	20240	2760	12%
14/65/185	25000	22250	2750	11%
15/65/205	30000	25800	4200	14%
15/65/195	30000	25500	4500	15%
14/70/195	32000	27840	4160	13%
14/C/195	36000	31320	4680	13%
16/650	54000	45900	8100	15%
16/750	80000	68800	11200	14%
30-16	340000	306000	34000	10%

Table (8) shows the difference between the old price policy and the new price policy while maintaining the quantities of production and thus achieving an increase in sales:

Table 8: Effect of price policy on improving market share

Products	Production amount	Actual cost (old policy)	Target cost (new policy)	Difference	Increase in sales / unit
12/165	10000	22206.89145	18000	4206.89145	0.233716192
12/500	80000	24666.62514	20240	4426.62514	0.218706776
14/65/185	27000	27195.6471	22250	4945.6471	0.222276274
15/65/205	26000	31439.55381	25800	5639.55381	0.218587357
15/65/195	26000	31647.41863	25500	6147.41863	0.24107524
14/70/195	70000	33743.38888	27840	5903.38888	0.212047014
14/C/195	2500	35804.715	31320	4484.715	0.143190134
16/650	2500	52666.0162	45900	6766.0162	0.14740776
16/750	2000	74606.1478	68800	5806.1478	0.084391683
30-16	2500	333373.596	306000	27373.596	0.089456196
Total	248500	667350	591650	75700	

It is noted from the table above that the new and high price of the tire product will lead to increased tire sales and thus achieve a competitive price advantage and increase the profits of the company.

Conclusions

The lean accounting tools are not limited to the tools chosen in this study as any method can be used to reduce waste and loss of time and resources. It can support the application of lean accounting as the company is constantly developing its production methods and manufacturing plans so it is not possible to limit the number of tools and consider them as the lean accounting tools. With the continuous development of work, new tools can be discovered that will enhance the work of lean accounting. The aim of this study is to use value chain analysis as one of the most efficient accounting tools to enhance the competitive position of industrial companies by testing the effect of applying the value chain method in rationalising production costs and achieving competitive advantage. The current study used the case study in the Najaf tire factory, one of the formations of the General Company for Rubber Industries and Tires and the adoption of the factory data for the fiscal year 2018. The study concluded that the application of the value chain analysis method leads to the identification of waste deposits in the production resources and the disposal of the management towards disposal either through the percentage of exploitation of production capacity or by excluding costs that do not add value from the point of view of the customer. This procedure leads in turn to a positive impact on the price policy of the company through the provision of competitive advantage cost reflected in the reduction of selling prices and thus achieve competitive advantage and increase the market share of the company's products. The competitive advantage of the company is a suitable source to outperform its competitors in the tire industry by producing better products at a lower cost.



The results also show the company's ability to achieve its objectives of producing high-quality products at low cost to meet the needs of consumers.



References

- Abuthakeer, S. S., Mohanram, P.V., & Kumar, G.M. (2010). Activity Based Costing Value Stream Mapping, *International Journal of Lean Thinking*, 1(2), 51-64.
- Aksoylu, S. (2014). 1 Value Flow Costing in Hospital Enterprises,, Niğde University Journal of Economics and Administrative Sciences, Volume: 7, Number: 1, pp.260 - 272.
- Almusawi, E. G., Almagtome, A. & Shaker, A. S. (2019). Impact of lean accounting information on the financial performance of healthcare institutions: A case study, *Journal of Engineering and Applied Sciences*, 14(2), 589–599.
- Birgün, S., Gülen, K. G. and Ozkan, K. (2006). Sayı Using Value Flow Mapping Technique in the Process of Lean Production: An Application in Manufacturing Sector ünde, *Istanbul Commerce University Journal of Science*, Vol: 1, No: 9, pp.47 - 59.
- Blocher , Edward (2010) . *Cost Management A Strategic Emphasis*. 5th Revised edition Edition.
- Cengiz, Emre, esinde *Lean Accounting in the Framework of Management Accounting* Muh Ankara, Gazi Publications, October 2011.
- Cochran, D. S., Sereno, R. & Aldrich, W. (2014). Enterprise Engineering of Lean Accounting and Value Stream Structure through Collective System Design, *Proceedings of the 2014 IIE Engineering Lean and Six Sigma Conference*, Orlando, Florida.
- Gereffi , G . (1999). International Trade & Industrial Up Grading In The Apparel Commodity Chain. *Journal Of International Economics*.48,(1) .37-70.
- Ghemawat, P. & del Sol, P. (1998). Commitment Versus Flexibility, *California Management Review*, Vol. 40, No. 4.
- Gracanin, D., Buchmeister, B. & Lalic, B. (2014). Using Cost-Time Profile for Value Stream Optimization, *Procedia Engineering*, 69,1225–1231.
- Hines, P., Rich, N., Bicheno, J. & Brunt, D. (1998).“Value Stream Management”, *The International Journal of Logistics Management*, 9(1):25–42.
- Hornigren , charles T . and Forster ,George and dater , srikant M.(1997). *Cost Accounting :A Managerial Emphasis*, 9th ed , prentice-hill, inc ,new jersey , p4



- Horngren , Charles T. & Foster , George and Dater , Srikant M. (2000). Cost Accounting A Managerial Emphasis , 10th Ed. ,Prentice- Hall , Inc. ,New Jersey , U.S.A.
- Kotler , Philip . (2000). Marketing Management , 10th ed., Prentice Hall .Int. Inc.
- Lacerda, A. P., Xambre, A. R. & Alvelos, H. M. (2016). Applying Value Stream Mapping to eliminate waste: a case study of an original equipment manufacturer for the automotive industry, *International Journal of Production Research*, 54(6), 1708–1720.
- Lopez, P. R., Santos, J. F. & Arbos, L. C. (2013). Lean Manufacturing: Costing The Value Stream, *Industrial Management & Data Systems*,113(5), 647–667.
- Macmillan , Hugh, and Tampoe, Maher.(2000), Strategic Management, Oxford University press inc
- Maskell, B. H., & Katko, N. (2007). Value Stream Costing: The Lean Solution to Standard Costing Complexity and Waste, in *Lean Accounting: Best Practices for Sustainable Integratio*, John Wiley and Sons, New York.
- Shazali, N. A., Habidin, N. Ali, F. N. Khaidir, A., & Jamaludin, N. H. (2013). Lean Healthcare Practice and Healthcare Performance in Malaysian Healthcare Industry, *International Journal of Scientific and Research Publications*, 3(1), 28–45.
- Tortorella, G. L., Fogliatto, F. S., Anzanello, G. A. Marodin, M. G. & Esteves, R. R. (2016): Making the value flow: application of value stream mapping in a Brazilian public healthcare organisation, *Total Quality Management & Business Excellence*.
- Winkel, J., Edwards, K., Birgisdóttir, B. D. & Gunnarsdóttir, S. (2015). Facilitating and inhibiting factors in change processes based on the lean tool ‘value stream mapping’: an exploratory case study at hospital wards, *International Journal of Human Factors and Ergonomics*, 3(3/4), 291-302.