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CONTENTS

Page

1. **Diem, N. T.N. and Lanh, N. T.** - Key Factors Influencing the Liquidity Risk of Commercial Banks in Vietnam 3
2. **Vi, H. T. and Thuy, V. T. N. and Dat, P. M.** – Time orientation in advertising avoidance: the study of online advertising platforms 16
3. **Hang, T. T. B. and Anh, T. T. K.** - Factors affecting the development of management-level personnel in international travel enterprises of Hanoi 28
4. **Trang, N. Q.** - The use of lifecycle costing management: A survey in Vietnamese mechanical manufacturing enterprises 45
5. **Hieu, P. D. and Huyen, C. T.** - Factors Affecting the Application of Responsibility Accounting: A Case Study in Automobile Manufacturing Enterprises in Vietnam 56
6. **Duong, L. T. T. and Linh, V. T. T.** - The Factors Affect on the Satisfaction of Customers Using Mobile Banking: An Empirical Study in Vietnam 66
7. **Chi, N. T. K.** - Understanding Domestic Tourist Behaviors for Eco-Tourism Sustainable Development 80
8. **Dut, V. V. and Tuyen, P. L.** - The Relationship Between Economic Growth, Foreign Direct Investment, And Environmental Pollution in Vietnam 95
9. **Vinh, L. H. and Thu, V. T. A.** - Does Tax Planning Create Value-Adding for Vietnamese Listed Firms? 107

THE USE OF LIFECYCLE COSTING MANAGEMENT: A SURVEY IN VIETNAMESE MECHANICAL MANUFACTURING ENTERPRISES

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From an empirical survey, the study explores the application of cost management accounting practices in the product lifecycle in Vietnamese mechanical manufacturing enterprises (VMMEs). Research results show that VMMEs have applied Life - cycle costing management at certain extent with the content of combination Target costing and Kaizen costing. In addition, managers' awareness of the role of Life - cycle costing management is an important factor promoting enterprises apply these practices effectively, in accordance with the management requirements of businesses and the development of mechanical industry in the context of international economic integration.

Keywords: Cost management accounting practices, Lifecycle costing management, Target costing, Kaizen costing, Standard costing.

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1. Introduction

Mechanical manufacturing is a fundamental industry of every country. In recent years, the number of Vietnamese mechanical manufacturing enterprises (VMMEs) accounts for nearly 30% of the total processing and manufacturing enterprises in Vietnam (General Statistics Office of Vietnam, 2019). So, the Government has issued many policies to develop the mechanical manufacturing industry sustainably. However, due to the impact of the world economy's recession and the Covid-19 Pandemic, the industry in general and mechanical manufacturing are facing many difficulties: lack of investment capital, machinery and equipment, manufacturing technology, human resource level... Moreover, the signed trade agreements have taken effect, the price of input material has been fluctuating and market competition among domestic enterprises with foreign ones has been increasing meanwhile consumer tastes change rapidly, product life cycle is short-

ened, production technology is becoming more modern, the proportion of direct labour costs in total product costs is significantly reduced. The change of production conditions, the development of science and technology, the economic environment, the level of production organization and management... have significantly affected cost management accounting practices that businesses are applying. They must implement measures to improve production processes and continuously review and adjust standard costs. The application of traditional cost management accounting practices is no longer suitable. To control and save production costs effectively, enterprises need to consider total life-cost management. An effective cost management method must allow businesses not only to produce new products that meet customers' needs at the best cost, but also to provide active support to reduce cost of current products, thereby increasing profit for businesses.

Since the 1980s, Lifecycle costing management, which is characterized by a combination of two techniques: Target costing and Kaizen costing, was applied first in Japanese automobile engineering enterprises and then spread to developed countries in Western European. This model has been proven to bring great benefits in cost management in a few highly automated manufacturing industries. However, due to objective and subjective reasons, such as the difference in production levels, the implementation of this model in developing countries (including Vietnam) is facing many difficulties.

Through a relatively comprehensive survey in 79 mechanical manufacturing enterprises under the Vietnam Association of Mechanical Industry (VAMI), the study will answer 2 questions: (1) To what extent are VMMEs applying Lifecycle costing management? (2) How are managers of VMMEs aware of Lifecycle costing management as the administrative support tool? The research results will be the basis to propose some recommendations, that promote VMMEs and manufacturing enterprises in Vietnam in general to apply cost management accounting practices in lifecycle of products effectively.

The layout of the article is as follows: section two discusses about product life cycle and literature review about the application of Lifecycle costing management in businesses. Features of mechanical manufacturing enterprises and the ability to apply Life - cycle costing management in VMMEs are presented in section three. The research methodology is described in section four. Section five presents the results of the research. Finally, the conclusions along with the implications of the study is discussed in section six respectively.

2. Product life cycle and literature review about applying Lifecycle costing management in businesses

2.1. Product lifecycle

The term product lifecycle is an important concept that used by Management and Marketing professionals as a factor in deciding when it is appropriate to increase advertising, reduce prices, expand to new markets, or redesign packaging... It refers to the length of time a product is introduced to consumers into the market until it is removed from the shelves [1].

Based on the characteristics of the market, competitors, marketing strategy and profitability, Marketing researchers have divided the product life cycle into 4 stages: (1) Introduction; (2) Growth; (3) Maturity; (4) Decline.

From the perspective of a work, based on cost characteristics and cost management requirements, Management accounting researchers have divided the life cycle of product into 3 phases: (1) Research, design, and development; (2) Mass production; (3) After - sales service or abandonment.

In general, there is not much difference in the division of stages in the product life cycle from the viewpoint of Marketing and Management accounting researchers, but only the separation of the mass production into 2 stages: growth and maturity. Research, design, and development stage from the standpoint of Management accounting corresponds to the stage of introduction in Marketing. Corresponding to After - sales service or abandonment in Management accounting is the decline period. According to the author, to achieve the cost management goal, the application of cost management practices should be suitable for the cost characteristics and cost management requirements of each stage in the product life cycle. Therefore, the study approaches the life cycle of product including 3 stages from the viewpoint of management accounting.

2.2. Literature review about applying Lifecycle costing management in businesses

When defining Lifecycle costing management, there are two approaches:

The first approach is to estimate total cost of the product over its lifecycle, including: initial capital costs, maintenance costs, operating costs, and the asset's residual value at the end of its life. Managers make decisions based on information about cost estimates, cash flow analysis, expected profit and loss... However, it is difficult to estimate the cost for the entire product life cycle. It depends on expert opinion rather than statistics.

The second approach is to combine cost management accounting practices in each stage of the product life cycle to control costs. This is also the approach of this study. As mentioned at the beginning of the article, in the context of increasingly modern technology, the proportion of direct labour

Table 1: Features of product life cycle stages

Stages	Marketing characteristics	Cost characteristics
Research, design and development	- Sales: Low, increasing slowly - Competiton: Low or no competiton - Advertising: Very high - Profit: Low	- Very high (due to initial marketing, advertising, distribution and so on)
Mass production	- Sales: Hit a peak and then gradually decrease - Competiton: Higher and higher - Advertising: High - Profit: Hit a peak and then gradually decrease	- High (but lower than research, design, and development stage) - Production costs account for the largest proportion
After - sales service or abandonment	- Sales: Decline Sharply - Competiton: Low - Advertising: Low - Profit: Low	- Controlling production costs is no longer the most important goal. - Managers must come up with a strategy to end products, determine when to stop production, cut costs related to communication; liquidation of equipment, handling of inventory...

(Source: Author's synthesis)

costs in total product costs has decreased significantly. In enterprises where the production process is divided into several highly independent stages, it is relatively difficult to distinguish direct costs from indirect costs. Meanwhile, managers are constantly looking for solutions to reduce costs because they realize that in a market economy “**price-led costing rather than cost-led pricing**” (Mike Tayles, 2011) [11]. To gain a competitive advantage, manufacturers must reduce costs relative to their competitors or continuously create new products that are significantly different. On the other hand, in the product life cycle stages, cost characteristics and cost management requirements vary widely. To achieve cost management goals in the short term and long term, managers must choose effective cost management techniques. The application of standard cost in traditional management accounting is no longer appropriate and needs to be specifically considered in each stage of the product life cycle [5,9]. This is also the main idea of Life - cycle costing management in business.

Lifecycle costing management is not a new independent management accounting technique. It is a combined application cost management accounting

practices in each stage of the product life cycle. This topic has been discussed in both theoretical and empirical studies. According to Sani and Allahverdizadeh (2012) [12], the popular cost management techniques of management accounting include: Costing systems that follow of cost; Overhead cost allocation methods; Budgeting; Target costing; Kaizen costing; Standard costing and Variance Analysis. However, in the context of research on the combination of cost management practices in product life cycle, the popular approach that has received the consensus of many scholars all over the world is the combination of 3 techniques: Target costing, Kaizen costing and Standard costing.

According to the studies of Kaplan et al [6-9], up to 80% of product lifecycle costs is identified as incurred in the research, design, and development stage. Therefore, cost management tends to be most effectively exercised during the introduction phase and not during the growth and maturity phases, when the product design and process have been determined and costs have been committed. This viewpoint is significantly different from the traditional cost management perspective, which focuses on controlling costs in the mass production stage,

when most costs are fixed and difficult to adjust. In another aspect, Monden & Hamada (1991) [10], Tanaka, Takao (1993) [14], De Zoysa and Herath (2007) [4]... argued that, in the market economy, few enterprises can set selling price, which is determined by the market. Businesses want to win the competition; their products must be sold at the price the market accepts. Calculating cost is based on 2 fixed factors: target selling price determined by the market and target profit of the owners. Therefore, enterprises tend to switch the method of determining prices from the approach "*cost-led pricing*" to "*price-led costing*". With this approach, right in the first stage of the product life cycle - the research, design, and development stage, it is recommended that businesses should apply target costing to determine the target cost and propose to managers solutions to save costs so that design costs do not exceed cost in plan Tanaka & Takao (1993) [14]; Cooper & Slagmuler (1997) [3]; Burrows & Chanhall (2012) [2]. Once the design and the production process have been agreed, the production mass phase can begin. Kaizen costing is recommended to be used to manage the efficiency of this phase. This includes a continuous process of reducing costs without reducing the quality of service to retain a competitive advantage. Kaizen costing is a management rather than an estimation technique because it is applied throughout the life cycle of a project to improve processes and reduce costs. This method fits in well with life cycle project management, ensuring that initial cost estimates are maintained. Especially, in enterprises that have mass production, that is manufacturing of the same standardized product lines for a prolonged period. It uses automation or assembly lines to facilitate the high-volume production of similar products. It is essential to continuously improve production processes, improve efficiency and cut unnecessary waste in all phases of the production process. And when enterprises apply the Kaizen costing but can not reduce costs anymore, it is a sign of ending the life cycle of the old product and should start other new product (Sulaiman, 2004) [13].

Agreeing with the above views, Sani and Allahverdzadeh (2012) [12] also said that Target costing ensures that the product is designed in such a way that the enterprises can sell the product at the

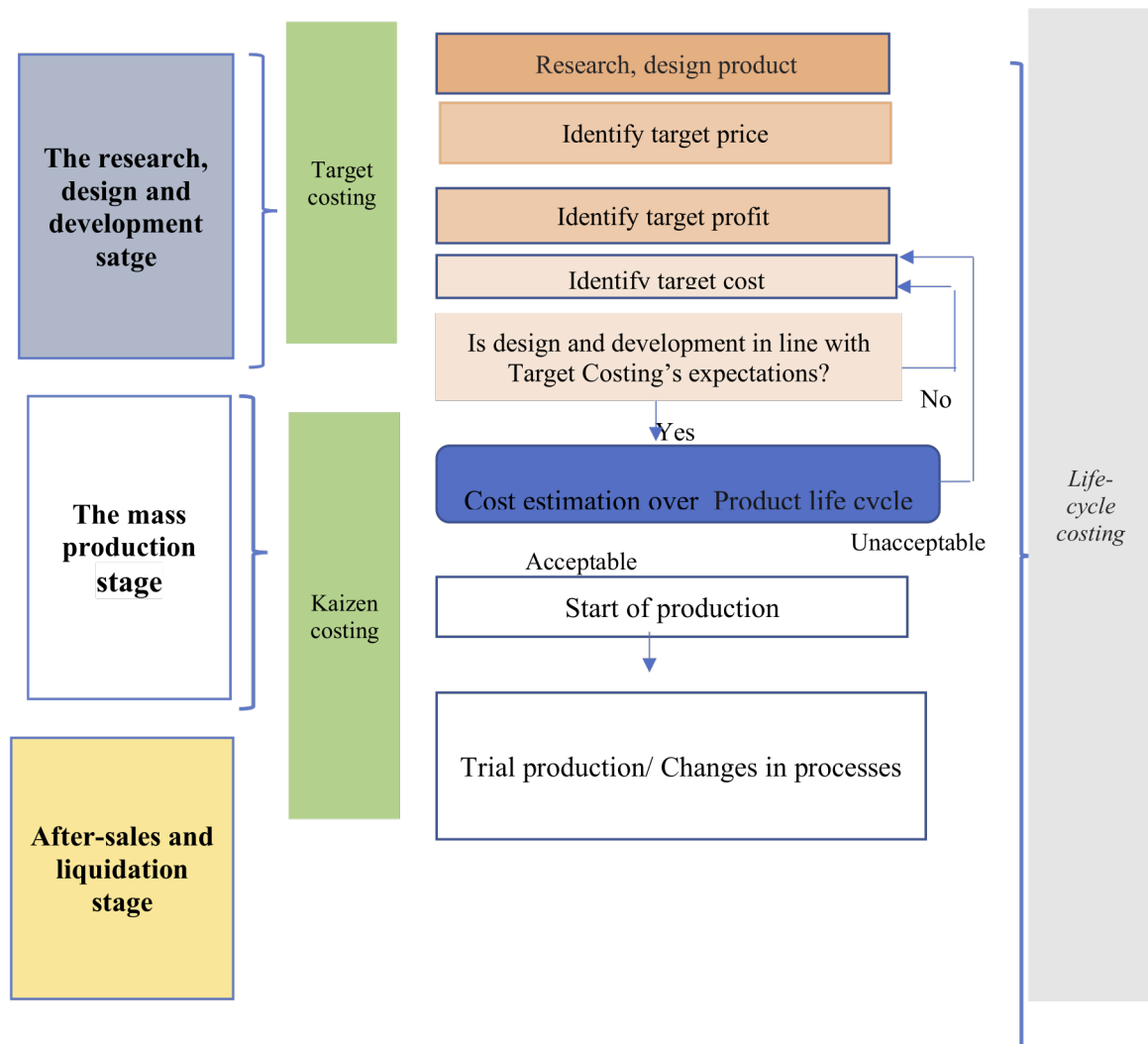
acceptable market price and still achieve the desired profit. Kaizen costing focuses on reducing costs in the mass production, for both new and current products to improve the quality of products and services. In the authors' view, in the decline stage, after the cost - reducing efforts in the previous stages, the production process has been continuously improved, the cost of product may have reached at the lowest level. Therefore, it is appropriate to apply standard costing. Research by author Nguyen Thanh Huyen (2017) [11] in Vietnamese ceramic tile manufacturers also makes a similar proposal, which is to apply Target costing at the research, design, and development stage, Standard costing and Kaizen costing should be flexibly combined in the mass production phase.

From the literature review, the author supposes that the core idea of Lifecycle costing management is the combination of applying 3 methods of cost management accounting: Target costing, Kaizen costing and Standard costing. The model can be summarized as the following diagram 1.

3. Features of mechanical manufacturing enterprises and the ability to apply Lifecycle costing management in Vietnamese mechanical manufacturing enterprises

There are many reasons why it is necessary to apply cost management accounting practices in over product life cycle in VMES. According to the author's research, some features of mechanical manufacturing enterprises that affect the application of this model include:

Firstly, the characteristics of the production process: In mechanical enterprises, the production process always includes two parallel processes: the design process and the manufacturing process. The design process is finished in a separate department (Technical/Design Department). After designing, enterprises conduct trial production before putting into mass production. The organization of trial production at the workshop aims to achieve two purposes: (1) Help the research and design department to evaluate and promptly handle and overcome technical problems and errors; (2) Help the cost Management Department to control the cost of the product as plan. After meeting the technical and cost requirements, the product is put into mass produc-



(Source: Sani and Allahverdizadeh (2012) with adjustment)

Figure 1: Lifecycle costing management

tion. The manufacturing process of mechanical products includes many stages, products are assembled from many small parts, diverse and replaceable materials depending on the application of the product in different fields. That creates more possibilities for mechanical products to perform the value analysis process to change technology, search for replacement materials, parts, etc... to reduce costs but still ensure functionality and increase value.

Secondly, mechanical products are a highly standardized, with little difference in many countries all

over the world. Therefore, the larger-scale mass production will help enterprises to gain advantages in production costs due to the initial costs related to researching and designing and fixed costs that allocate for unit will decrease.

Thirdly, the features of the market: Currently, foreign enterprises (from Japan, Korea, etc.) have invested in Vietnam in the form of 100% foreign owned companies, joint ventures and associates mainly operate in the fields of mechanics and electronics. They have attracted a lot of Vietnamese

workers and indirectly trained Vietnamese mechanical manufacturers to provide assembly details for their products. In such conditions, VMMEs always face pressure to reduce prices to be competitive. According to the author's survey, for each product, especially products that spare parts for the automobile, motorcycle, and electrical and electronic equipment manufacturing industries, All VMMEs must have a plan to reduce prices annual as committed (about 5% - 8%/year).

The above features set requirements for VMMEs to improve their competitiveness, they have tried to compete on price: that is, they have tried to provide goods at prices that compare favourably with those of their competitors. To do this successfully over time, they must also compete on costs: lower prices can only normally be sustained by lower costs. A strategic commitment to competitive pricing must therefore be accompanied by a strategic commitment to managing the cost base. They need to pay special attention to reducing costs on a regular and continuous basis right from the research, design, and development stage and throughout the mass production process. The combination of cost management practices associated with each stage in the product life cycle is the modern cost management model that will bring many practical, long-term, and sustainable benefits to businesses. In the current context, VMMEs have participated in the global supply chain and cooperated with partners from Japan, South Korea, etc., that are leading countries and achieved a lot of success in applying these modern cost management. With the experience in the process of implementing modern cost management accounting practices, they will directly train managers, engineers, technical workers to become the factors that promote quickly implement of the modern cost management practices in VMMEs.

4. Research methodology

As analyzing above, controlling cost is mainly concentrated in the two first stages of the product life cycle. When the product has entered the decline, the enterprise's goal will put more emphasis on the implementation of after-sales services, warranties, inventory handling, liquidation of fixed assets, etc. The more termination of production, the more be implemented as soon as possible for businesses.

Therefore, the objective of the study is to investigate the actual application of cost management accounting practices that VMMEs are applying in the research, design, product development and mass production stages.

To achieve research goals, the author has designed the questionnaire with 3 parts to collect information at the survey units:

λ Part 1: Information about respondents (Name, gender, position, seniority...).

λ Part 2: Surveying the level application Lifecycle costing management in VMMEs.

λ Part 3: Determining managers of VMMEs aware of Lifecycle costing management as the administrative support tool.

Survey questions in Part 1 are short forms of answers. Part 2 and 3 of the questionnaires is a table of 17 measurement questions that are built on literature reviewing published studies on the same topic by some authors such as White & Savage (1996) [16], Sani and Allahverdizadeh (2012) [12] and Nguyen Thanh Huyen (2017) [11]. In addition, the author has also adjusted it to suit the reality of VMMEs based on feedback from group discussions with 8 experts, of which 3 are lecturers of universities, 5 experts are chief accountants/financial directors of mechanical manufacturing enterprises: Truong Hai Automobile Company (THACO), Vietnam engine and agricultural machinery Corporation - JSC (VEAM), Export Mechanical Tools Joint Stock Company (EMTC), Dong Anh Electrical Equipment Corporation (EEMC) and Vietnam Automobile Industry Corporation (Vinamotor). These are the businesses that the author chooses for in-depth research because the author has directly exposed to the actual survey and has the unlimited permission of the units. Before that, to have an orientation and an overview of the research problem, the author conducted in-depth interviews with 5 senior managers of these 5 enterprises, especially pay attention to understanding their perceptions of cost management accounting practices in the product life cycle.

According to data published by the Ministry of Industry and Trade, by the end of 2020, there are about 3,100 VMMEs which are distributed in all three regions of the North, Central and South

(including domestic and FDI). The survey of all these enterprises is beyond the author's ability because the sample size is too large, the level of management organization, production organization ... of enterprises is not uniform. Over 90% of the 3,100 enterprises are collective production establishments, small and micro-sized private enterprises, with total business capital not exceeding 20 billion VNĐ, total annual revenue is not more than 50 billion VNĐ. Only over 100 enterprises have more than 100 employees. In order to ensure that the survey results are feasible, the data can be collected transparently and reliably, we limited the survey sample to the members of the Vietnam Association of Mechanical Industry (VAMI). According to published data from the General Statistics Office, in the period from 2016 to 2020, the production value of

Mechanical Industry (VAMI) and directly sent the survey questionnaires to the survey subjects via email using the googledocs tool. A total of 79/146 enterprises belonging to VAMI agreed to participate in the survey and had professional support within their capacity, ready to provide necessary documents during the author's research.

After collecting information from the businesses, the author synthesized data on Excel and Microsoft Office software, then used simple statistical analysis tools, combined with numerical data description absolute, relative numbers for data analysis according to research objectives.

5. Results of data analysis and discussion

5.1. Describe the research sample

Information about respondents of research samples is as follows:

Table 2: Information about respondents

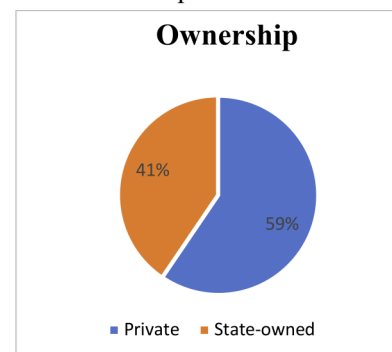
Items	Frequency	Ratio	Percentage of accumulative
Sex			
Male	53	67.08%	67.08%
Female	26	32.92%	100
Postion			
Senior executives	22	27.84%	27.84%
Chief accountants/ Finance Director	37	46.83%	74.67%
Workshop foremans	20	25.33%	100%
Experience			
Less than 5 years	12	15.25%	16.41%
5 to 10 years	26	32.82%	49.23%
More than 10 years	41	46.90%	100%

Source: Authors' calculation

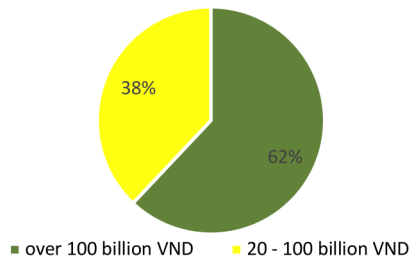
the sector accounts for nearly 75% of the total production value of the mechanical industry. All these enterprises are of medium and large scale, representing the key mechanical manufacturing sub-sectors of Vietnam.

The study selected potential respondents as 3 key people related to cost management activities in enterprises: senior executives, chief accountants/Head of Accounting Department and workshop foremans. During 5 months of survey from December 2020 to April 2021, we contacted the enterprises of the Vietnam Association of

Classification enterprises is as follows:



Capital



Source: Author's analysis

5.2. The actuality of applying life cycle costing management in the research, design and development stage

According to the survey results, there are 65/79 enterprises (82.27%) have applied Target costing in the research, design, and development stage. Only 14 enterprises (17.73%) still use standard costing of traditional accounting. Businesses that have applied Target costing in the first stage of the life cycle product said that they have planned on the expected selling price right from the time they have had an idea and designed product. The basis for enterprises

cuss. From the expected selling price and target profit, the businesses will identify the target price and start the trial production process.

Next, the author did in-depth research at enterprises that applied target costing in the research, design and development stage. They showed that if the trial production process does not meet the target cost, there are two options offered: Businesses either have to increase their selling price or reduce their target profit. 74.68% (59 enterprises) supposed that they have chosen to reduce their target profit. However, this is only a short-term correction. And they have expected to continue saving costs in the mass production stage when the product is mass-produced to achieve the initial target profit.

The statistical data described in Table 3 shows that the Marketing Department (Sales Department) and the Accounting Department are the 2 departments that have played the most important roles in setting the target selling price for new products (Means are 4,388 and 4,380 respectively). Next is the Research and Design department, the Technical department, the Material planning department, the Human resources department and other departments have less of a role to play in formulating the expected selling price for the new product.

Table 3: Departments involved in formulating target selling prices for new products

	Number of samples (N)	Minimum	Maximum	Mean	Std. Deviation	Rank
1. Marketing (Sales)	79	3.0	5.0	4.395	.5904	1
2. Research and Design	79	3.0	5.0	4.380	.5508	3
3. Technical	79	2.0	5.0	3.447	.9558	4
4. Accounting	79	3.0	5.0	4.388	.5030	2
5. Material planning	79	1.0	5.0	2.571	1.0784	7
6. Human resources	79	1.0	4.0	2.813	1.2670	6
7. Others	79	1.0	4.0	2.940	1.2060	5

(Source: Authors' calculation)

to identify target selling prices is based on the selling price of their similar products or of similar products' price of competitors. 44 enterprises (67.69%) agreed that they have combined these two information to set up selling price for new products. Usually, the expected selling price is developed and proposed by the Marketing department (Sales Department) based on the results of the basis of researching the market and competitors. After that, the target selling price is offered for other departments (design, engineering, accounting...) to dis-

5.3. The actuality of applying life cycle costing management in the mass production stage

Only 5 enterprises in the survey sample (6.32%) responded that they have applied Kaizen costing in the mass production phase. Others agreed that they have controlled cost through Standard costing and Budget costing of traditional accounting. However, this result is very inconsistent with the author's survey in these enterprises. Currently, competitive pressure is one of the biggest problems that VMMEs have had to face. They compete with not only FDI

but also domestic enterprises. To win the competition, managers must pay attention to reducing and saving costs. According to the survey results, 100% enterprises carry out a review of the standard cost system every once 3 months or 6 months. Based on information related to the actual production cost level of the previous period, information comparing the difference between the actual standard cost and the estimated cost in budget, information on technical improvements of production department and price fluctuations of input factors (raw materials, wages, etc.), the managers will make a decision to

make cost reports and calculate actual costs and then send reports to the planning department for evaluating the cost reduction plan.

According to the author, there is a problem related to the perception of cost management accounting practices that enterprises are applying. With the above survey results, it can be seen the fact that enterprises have applied the Kaizen costing to control costs in the mass production phase, but they have thought that they are applying Standard costing and control costs through budgeting.

Table 4: *Departments involved in Monitoring and evaluating the the cost reduction plan*

	Number of samples (N)	Minimum	Maximum	Mean	Std. Deviation	Rank
1. Marketing (Sales)	79	2	5	4.03	1.279	3
2. Technical	79	1	5	3.31	1.338	4
3. Planning department	79	2	5	4.21	.986	1
4. Accounting	79	2	5	4.08	1.002	2

(Source: Authors' calculation)

adjust the standard cost of the planning period. And the general trend is that the standard cost of the next period must be adjusted down compared to the previous period. According to the survey results at 3 companies: VEAM, EMTC, EEMC, of the three production cost elements, the cost reduction mainly focuses on direct material costs. Direct labor costs and overheads are virtually impossible to decrease. This is explained by the leaders of these units as follow: Reducing direct material costs can be done easily through improving the production process, adjusting the standard direct material cost, reaching an agreement with suppliers.... Meanwhile, direct labor costs are directly related to the company's salary policy, and the overheads are related to other products, so it is difficult to affect these two standards cost.

The statistical data described in Table 4 shows that the Planning department plays the most important role in monitoring and evaluating the implementation of the cost reduction plan, followed by the Technical supervision department at the workshop and Accounting department. This is explained as follows: the Planning is the department that sets and adjusts the standards, so the monitoring and evaluation of the implementation of the standard costs will be mainly undertaken by them. The main task of the accounting department is to rely on accounting documents, collect actual costs incurred,

5.4. The actuality of determining managers of VMMEs aware of Lifecycle costing management

The data from Table 5 below shows that managers have self-assessed cost effectiveness at all 3 stages in the product life cycle. The average score on the Likert scale for each period ranges from 3.333 to 3.4086/5. Managers self-assess that their cost management activities are most effective during the mass production phase, followed by the research, design, and development phase, and finally the After - sales service or abandonment phase.

Table 6 is the statistical results describing the assessment of managers about the benefits of 3 management accounting practices have been applied. According to this result, standard costing is assessed to bring the most benefits to enterprises (Mean = 4.3733), followed by Target costing (Mean = 3.9352). The benefit of Kaizen costing is only assessed at an average level (mean = 2.7167).

The results of the survey and general assessment of enterprises on the application of cost management accounting that have applied: 23/79 enterprises (29.11%) agreed that the cost management accounting model is completely appropriate suitable and bring many benefits to enterprises; 49 enterprises (62.00%) rate the benefits that the model brings to enterprises at a normal level. The rest (7 enterprises, less than 10%) supposed that the current model hardly brings few benefits to enterprises.

Table 5: Descriptive statistical results to evaluate the effectiveness of cost management activities in the product life cycle

Stage	Number of samples (N)	Minimum	Maximum	Mean	Std. Deviation	Rank
Research, design and development	79	1	5	3.3978	1.1622	2
Mass production	79	2	5	3.4086	1.1724	1
After-sales and liquidation	79	1	5	3.3333	1.1826	3

(Source: Authors' calculation)

Table 6: Assessment of benefits of cost management accounting practices

	Number of samples (N)	Minimum	Maximum	Mean	Std. Deviation	Rank
Target costing	79	2	5	3.9352	1.1622	2
Kaizen costing	79	1	5	2.7167	1.7724	3
Standard costing	79	1	5	4.3733	1.1826	1

(Source: Authors' calculation)

6. Conclusion

The study has clarified 2 issues: (1) The level of applying Lifecycle costing management with the connotation of the combination of Target costing and Kaizen costing in VMMEs? (2) How are managers in VMMEs aware of Lifecycle costing management as a support tool for enterprise management.

Firstly, about the degree of application of lifecycle costing management: It is generally assessed that the VMMEs which have participated in the survey have implemented cost management according to the product life cycle, specifically combining two modern cost management practices: Target costing and Kaizen costing. However, the application of these two methods is still limited and at different levels. Especially the application of Kaizen costing at mass production phase is not clear, even confused in the perception of the applicable cost management practices. There are a few reasons, but the most important reason is that the awareness and qualifications of accountants and managers about these practices are still vague. Target costing is more clearly understood and appreciated so applying is more clearly.

Secondly, the assessment of the managers of VMMEs about the role of lifecycle costing management as a support tool for enterprise management gives positive results. Over 90% of enterprises in the survey sample rated the benefits that the model brings at normal level or higher. This proves that enterprises are aware of the role and importance and urgency of applying this model in enterprises, especially in the context of increasing competitive pres-

sure that enterprises face. This result further shows the need for solutions to promote the effective application and application of the life cycle costing management at VMMEs in particular and manufacturing enterprises in Vietnam in general.

Stemming from the characteristics of mechanical production enterprises, the application of cost management accounting according to the product life cycle is an inevitable need. From a micro-perspective from Vietnamese mechanical manufacturers, in order to promote the application of the product life cycle costing model, in our opinion, there are two issues that need to be noticed by businesses:

It is necessary to change managers' perceptions of cost management accounting methods. Currently, managers' understanding of these methods is still limited. This can be fully explained by the reason that administrators and managers in VMMEs are usually developed from engineers and technical workers. Although they have a lot of professional experience, the management knowledge, and skills in organizing production resources are not the strengths of them, even more limited than the managers of enterprises joint venture. In order to overcome this limitation, managers need to actively study the basic knowledge of management accounting in general and cost management accounting methods in particular.

Businesses should focus on improving the qualifications of the accountants. Qualified accountants will play a role in advising management decision-making. Since then, managers change their perception of the work of accountants and actively partici-

pate in intensive training courses to be able to update new management knowledge and trends not only for themselves but also deploying and creating for both the staff and the whole enterprise. ♦

References:

1. Armstrong, G., Adam, S., Denize, S., & Kotler, P. (2014), *Principles of marketing*, Pearson Australia.
2. Burrows, G., & Chenhall, R. H. (2012), *Target costing: First and second comings*, Accounting History Review, 22 (2), 127-142.
3. Cooper, R., & Slagmulder, R. (1997), *Factors influencing the target costing process: Lessons from Japanese practice*.
4. De Zoysa, A., & Herath, S. K. (2007), *Standard costing in Japanese firms: Reexamination of its significance in the new manufacturing environment*, Industrial Management & Data Systems.
5. Feil, P., Yook, K. H., & Kim, I. W. (2004), *Japanese target costing: a historical perspective*, International Journal, 11(1), 10-19.
6. Kaplan, R. S. (1984), *The evolution of management accounting*, The Accounting Review, 59(3), 390-418.
7. Kaplan, R. S. (1986), *Must CIM be justified by faith alone?* Harvard Business Review.
8. Kaplan, R. S. & Johnson, H. T. (1987), *Relevance lost*, Boston, MA: Harvard Business School Press. (2), 87-95.
9. Kaplan, R. S., & Kaplan, R. S. (Eds.). (1990), *Measures for manufacturing excellence*, Harvard Business Press.
10. Monden, Y., & Hamada, K. (1991), *Target costing and Kaizen costing in Japanese automobile companies*, Journal of Management Accounting Research, 3(1), 16-34.
11. Nguyen Thanh Huyen (2017), *Applying the cost management accounting method system to the product life cycle in Vietnamese ceramic tile manufacturers*, PhD thesis, Academy of Finance.
12. Sani, A. A. and Allahverdizadeh, M. (2012), *Target and Kaizen costing*, World Academy of Science.
13. Sulaiman, M. Ahmad, N.A.N. and Alwi, N. (2004), *Management accounting practices in selected Asian countries*, Managerial Auditing Journal, 19(4), 493-508.
14. Tanaka, T. (1993), *Target costing at Toyota*, Journal of cost management, 7(1), 4-11.

15. Tayles, M. (2011), *Strategic management accounting*, In Review of management accounting research, Palgrave Macmillan, London, 22-52.

16. White, A. L., Savage, D., & Shapiro, K. (1996), *Life-cycle costing: Concepts and application*, In M. A. Curran (Ed.), Environmental life-cycle assessment, New York: McGraw-Hill 1-19.

Summary

Trên cơ sở khảo sát thực nghiệm, bài viết đánh giá mức độ áp dụng kế toán quản trị (KTQT) chi phí theo vòng đời sản phẩm tại các doanh nghiệp sản xuất (DNSX) cơ khí Việt Nam. Kết quả nghiên cứu cho thấy, các DNSX cơ khí Việt Nam đã áp dụng KTQT quản trị chi phí theo vòng đời sản phẩm ở những mức độ nhất định với nội hàm là sự kết hợp của phương pháp chi phí mục tiêu (Target costing) và cắt giảm chi phí liên tục (Kaizen costing). Bên cạnh đó, nhận thức của nhà quản trị về vai trò của KTQT chi phí theo vòng đời sản phẩm là nhân tố quan trọng thúc đẩy các DN áp dụng có hiệu quả phương pháp này trong thời gian tới, phù hợp với yêu cầu quản lý DN và lộ trình phát triển của ngành cơ khí trong bối cảnh hội nhập.

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