

Movement From Traditional to Modern Cost Accounting Methods in Manufacturing Companies (*)

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Abstract

Significant changes in business environment at the end of 20th century and the beginning of 21st century enable the development and application of modern cost accounting methods which main purpose is to give required information to management regarding the effectiveness of certain products, projects, activities, consumers, responsibility centres etc. Traditional cost accounting methods were developed in the middle of 20th century due to the automation of production. The focus of traditional cost accounting methods was on manufacturing cost and ways of indirect manufacturing costs allocation to products or services. But, further development of technology, changes in consumer's preferences, global competition face modern manufacturing companies with permanent challenges of survival at the global market. Traditional cost accounting methods are no longer appropriate in modern business conditions, because cost accounting methods should indicate the potential areas in companies where are possible cost savings. Therefore, modern cost accounting methods are focused on cost rationalization and cost reduction, since modern manufacturing companies cannot effect on market prices but can effect on their costs. In current business conditions, modern cost accounting methods

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are more appropriate while they are focused on the total costs through the whole product life cycle. This paper deals with the modern cost accounting methods and their application in manufacturing companies. The results are showing that modern cost accounting methods enables more confidential determination of the real product profitability. But it is also important to state that research results show that modern cost accounting methods should be applied together with traditional cost accounting methods. Traditional cost accounting methods give information regarding cost in short term, while modern methods are orientated on longer period (e. g. on the whole product life cycle).

Key words: Traditional Cost Accounting Methods, Modern Cost Accounting Methods, ABC, Target Costing, Life Cycle Costing, Product Profitability.

Jel Classification: M21, M4A, M51

1. Introduction

The basic purpose of costing systems is to determine the cost of a product or service by assigning manufacturing costs to products or services that company produces or provides. Costing system consist of different accounting methods used in order to define the cost per unit. Accounting methods used in costing system enable the evaluation of products as a result from the manufacturing process. It is important to point out that different costing systems differently affect the product evaluation. The choice of costing system was based on the type of the production process. Therefore, job order costing was used in job order production, while process costing was applied in process or mass production. Today, these two costing systems are considered as traditional costing systems which are no longer suitable to use in modern operating conditions. Business conditions are changing rapidly becoming more and more complex. Manufacturing processes in modern production companies are almost fully automated and computerized. The process of manufacturing automation and computerization causes significant change in manufacturing cost structure. The most important cost element in modern manufacturing cost structure becomes indirect manufacturing costs

(manufacturing overheads). This change in manufacturing cost structure found traditional costing systems inappropriate for product evaluation. In order to avoid the inaccuracy of traditional costing systems in product evaluation, the new costing system, based on activities, has been developed. This costing system is known as Activity based costing.

2. The Types of Costing Systems

Costing system can be defined as a system used to assign costs to cost objects (products or services). The main purpose of costing system is to enable cost assignment. Cost assignment is the process of assigning direct and indirect costs to products or services in order to determine the cost of a product or service.

Each costing system consists of five basic elements:¹

1. *cost object* – anything for which a measurement of cost is desired. Usually, cost objects are products or services that certain company manufactures or provides.

2. *direct costs of a cost object* – these are costs that can be traced to a particular product or service

3. *indirect costs of a cost object* – these are costs that cannot be traced to a particular product or service. Indirect costs need to be allocated to cost objects using a proper cost allocation method.

4. *cost pool* – a grouping of individual cost item. The cost pools are formed when company uses more cost allocation bases. In ABC system, cost pools are identified activities to which indirect costs are assigning.

5. *cost allocation base* – the factor that links in a systematic way an indirect cost (or group of indirect cost) to a particular cost object.

1) Horngren, C.T., Datar, S.M., Foster, G. (2003), *Cost Accounting – A Managerial Emphasis*, Prentice Hall, New Jersey, p. 96-97.

These five elements are used to design an adequate costing system.

There are three basic costing systems used in manufacturing companies in order to determine the cost of a particular product or to evaluate product profitability:²

1. job order costing,
2. process costing,
3. activity based costing.

The first two costing systems are known as traditional costing systems. While the application of traditional costing systems depends on the type of a manufacturing process, activity based costing system can be applied regardless the type of manufacturing process. The main issue for companies is: when is convenient to use traditional costing systems and when activity based costing system should be applied? To answer on this question the operating conditions and the manufacturing cost structure should be considered.

2.1. Cost allocation in traditional costing systems

The basic distinction between job costing and process costing system is in determination of cost object. In job costing cost object is a job which consists of a unit or multiple units of distinct products or services. In process costing cost object is masses of identical or similar units of a product or service. Therefore, job costing can be applied in manufacturing which is initiated by a customer's order, while process costing can be used in mass production which is continually performing and is not initiated by a customer's order.

Cost allocation is similar in job costing and in process costing. In both costing systems direct manufacturing costs are traced to products or services. These costs are directly assigned to particular products or services which cause their appearance. Direct manufacturing costs include direct material costs and direct labour costs. The main problem of every costing system is indirect manufacturing costs allocation. Because these costs cannot

2) Lucey, T. (1996), *Costing*, DP Publications, London, p. 175-176.

be directly identified to particular product or service, indirect manufacturing costs need to be allocated to products or services on some reasonable bases which correctly present the relationship between indirect manufacturing costs and certain product. This relationship is often very difficult to express by a single allocation base. It is important to emphasise that there is no allocation base which can accurately provide indirect cost allocation to products. Chosen cost allocation base can be more or less objective, but it can't be 100% accurate. Indirect manufacturing costs are usually assigned to products or services using the following cost allocation bases:³

1. direct labour hours,
2. machine hours,
3. direct material costs,
4. total direct costs,
5. quantity of production.

Indirect manufacturing costs are assigned to cost object by an overhead allocation rate which is computing on the chosen cost allocation base.⁴

$$\text{OAR} = \frac{\text{total indirect manufacturing costs}}{\text{cost allocation base}}$$

Companies can use either one or more overhead allocation rate for assigning indirect manufacturing costs to products or services. It is considered that the more overhead allocation rates are used the cost per unit is more accurate and the product profitability evaluation is more reliable and more objective for decision making.

3) Engler, C. (1988), *Managerial Accounting*, Irwin, Homewood, Illinois, p. 427

4) Lucey, T. (1996), *Costing*, DP Publications, London, p. 88

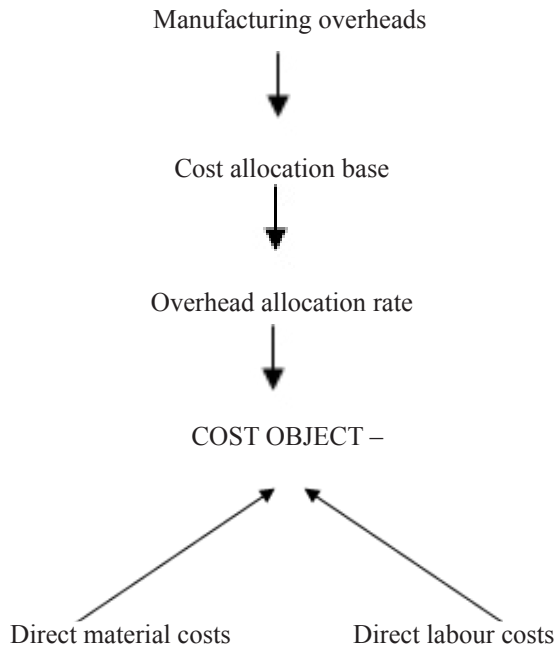


Figure 1. Cost allocation in traditional costing systems

In traditional costing systems the indirect manufacturing costs are allocated to cost objects on arbitrary bases which could affect on product profitability evaluation. The impact of traditional costing systems appliance on product profitability evaluation depends on certain conditions among which is manufacturing cost structure considered as the most important. If indirect manufacturing costs participate significantly in total manufacturing costs, traditional costing system may cause the wrong picture of product profitability evaluation. Otherwise, traditional costing system can provide relatively objective product profitability evaluation.

2.2. Cost allocation in Activity Based Costing System

Activity Based Costing system (ABC system) was designed in order to correct the deficiencies of traditional costing systems. The initial purpose of ABC system is to provide the fair and accurate cost allocation

and therefore product profitability evaluation also. According to that, ABC system focuses attention on indirect manufacturing costs. The aim is to define the most appropriate way for indirect manufacturing costs allocation to cost objects.

The main assumption of ABC system is: products consume activities and activities consume resources.⁵ The more activities are set up, the more complex is ABC system. An activity is defined as any event, action, transaction or work sequence that incurs cost when producing a product or providing a service.⁶ In ABC system direct manufacturing costs are also directly traced to products or services, so the main attention is paid on indirect manufacturing costs which are allocated to activities instead to departments or jobs (like in traditional systems). Basically, the application of ABC system is going through two main phases. In the first phase indirect manufacturing costs are allocated to activity cost pools. It is important to determine the correlation between particular indirect manufacturing cost and identified activity. Every indirect manufacturing cost must be assigned to proper activity which causes its occurrence. The second phase in ABC application is assigning indirect manufacturing costs from activity cost pools to products using defined cost drivers. A cost driver is any factor or activity that has a direct cause – effect relationship with the resources consumed.⁷ ABC system uses multiple cost allocation bases to assign indirect manufacturing costs to products or services. The usage of multiple allocation bases can provide a more accurate and objective product profitability evaluation.

5) Horngren, C.T., Datar, S.M., Foster, G. (2003), *Cost Accounting – A Managerial Emphasis*, Prentice Hall, New Jersey, p. 141.

6) Horngren, C.T., Datar, S.M., Foster, G. (2003), *Cost Accounting – A Managerial Emphasis*, Prentice Hall, New Jersey, p. 141 or Weygandt, J.J., Kieso, D.E., Kimmel, P.D. (2005), *Managerial Accounting*, John Wiley & Sons, USA, p. 144.

7) Weygandt, J.J., Kieso, D.E., Kimmel, P.D. (2005), *Managerial Accounting*, John Wiley & Sons, USA, p. 144.

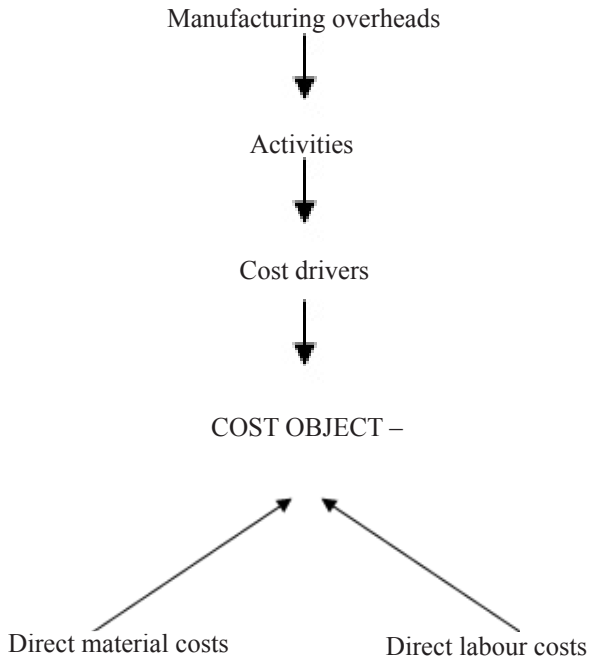


Figure 2. Cost allocation in ABC system

Cost drivers should correctly show the relationship between certain activity and cost objects. Otherwise, even this costing system can lead to product cost distortion and unreliable product profitability evaluation. ABC system is very complex and takes much more effort and resources to implement than traditional systems. Its application is justified only if the benefits from ABC system exceed costs of its implementation. So, when management of a company decide to implement ABC system must be sure that ABC system will provide the more useful cost information for business decision making than traditional systems.

2.3. Traditional systems vs. ABC system – the impact on product profitability evaluation

The main dilemma which many manufacturing companies face to is the choice of costing system. Traditional costing systems show certain deficiencies in product profitability evaluation especially when chosen cost allocation bases are not in direct correlation with indirect manufacturing costs. Today's manufacturing environment characterizes automated and computerized manufacturing processes, technological innovations and global competition.⁸ As a result of these changes, indirect manufacturing costs are significantly increased, while direct labour costs are dramatically decreased. In these conditions, traditional costing systems cannot provide objective and accurate product profitability evaluation because typical cost allocation bases in traditional system (which are direct labour hours and machine hours) are no longer in correlation with indirect manufacturing costs appearance. Therefore, the new approach for cost allocation needs to be applied. ABC system is more appropriate costing system in modern manufacturing conditions. Many surveys conducted in modern manufacturing companies worldwide indicate the factors which directs to ABC system application. These factors are:⁹

1. product lines differ greatly in volume and manufacturing complexity;
2. product lines are numerous, diverse and require differing degrees of support services;
3. overhead costs constitute a significant portion of total costs;
4. the manufacturing process or the number of products has changed significantly – for example, from labour-intensive to capital-intensive due to automation;

8) *Ibid.*

9) *Ibid, p. 154*

5. production or marketing managers are ignoring data provided by the existing system and are instead using “bootleg” costing data or other alternative data when pricing or making other product decisions.

The existence of one or more of these factors would be the indicator that ABC system should be applied.

One of the most important factors that will be considered more clearly when deciding which costing system to apply is manufacturing cost structure. Recent tremendous changes in manufacturing cost structure, which are provoked by permanent manufacturing process automation, significantly increased ABC system appliance in modern developed manufacturing companies worldwide. As it is emphasised, the manufacturing process automation have increased indirect manufacturing costs which became the most significant cost category in total manufacturing costs. Simultaneously, direct labour costs have dramatically decreased and today are considered as no longer an important cost category. The portion of direct labour costs in total manufacturing cost in modern automated manufacturing companies is between 5 - 15%,¹⁰ while the portion of indirect manufacturing costs is often above 50%. Manufacturing cost structure in modern developed manufacturing sectors can be shown as it follows:

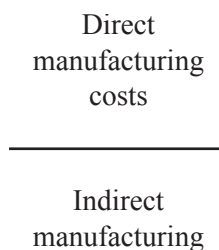


Figure3. Manufacturing cost structure in modern automated manufacturing sectors

10) Lucey, T. (1996), *Management Accounting, Letts Educational, London*, p. 37.

When indirect manufacturing costs take the significant portion of total manufacturing costs, more objective and more accurate product profitability evaluation can be achieved by using ABC system. But, if direct manufacturing costs take the significant portion of total manufacturing costs, then even traditional costing systems can provide relatively objective and accurate product profitability evaluation. In these circumstances using ABC system wouldn't contribute to more objective and more accurate product profitability evaluation.

3. Dynamic Approach of Cost Management

Dynamic approach of cost management enables the evaluation of product profitability through the entire product life cycle. Therefore, this approach is oriented to the long run decisions regarding pricing the product, forming the adequate product mix, eliminating the non-profit product line, introducing the new product line etc. But, in order to provide the management with relevant information regarding product profitability evaluation, accounting function in companies need to combine both the static and the dynamic approach of cost management e.g. need to combine and compare product profitability in the short run and in the long run. Only the interaction of these two cost management approaches can give the objective and reliable picture regarding product profitability.

While static cost management approach is based on traditional cost accounting methods which are focused mainly on manufacturing costs towards the determination of the manufacturing cost per unit, dynamic cost management approach involves modern managerial accounting methods focused on the total costs through the whole product life cycle. Modern managerial accounting literature recognizes several costing methods focused on the whole product life cycle. The most important methods are: target costing, theory of constraints, life-cycle costing and long-term pricing¹¹. These four

11) Blocher, E.J., Chen, K.H., Cokins, G., Lin, T.W. (2005), *Cost Management – A Strategic Emphasis*, McGraw Hill – Irwin, New York.

methods enable a comprehensive analysis of product cost and profitability through the whole product life cycle. *Target costing* emphasizes the role of product design in reducing costs in the manufacturing and downstream phases of the product life cycle.¹² *Theory of constraints* includes methods used to identify and to manage (or eliminate if possible) bottlenecks in manufacturing process in order to reduce manufacturing costs and to increase operating income¹³. *Life-cycle costing* tracks and accumulates all costs attributable to the each product through its whole life cycle¹⁴ enabling a complete evaluation of product profitability through its life cycle. Thus, *long-term pricing* uses life-cycle costing in long-term pricing decisions.¹⁵

In further chapters of this paper, target costing and life-cycle costing will be analysed, because these two methods are most commonly used by manufacturing companies, especially the ones where new product development, manufacturing speed and efficiency are important.

3.1. The Characteristics and Implementation of Target Costing

3.1.1. The Characteristics and Reasons of Target Costing

Application

Target costing is a specific approach developed in Japan which combines market and accounting information. Target costing can be defined as the process of determining the maximum allowable cost for a new product and then developing a prototype that can be profitably made for that

12) *Ibid.*

13) *Horngren, C.T., Datar, S.M., Foster, G. (2003), Cost Accounting – A Managerial Emphasis, Prentice Hall, New Jersey.*

14) *Ibid.*

15) *Blocher, E.J., Chen, K.H., Cokins, G., Lin, T.W. (2005), Cost Management – A Strategic Emphasis, McGraw Hill – Irwin, New York.*

maximum target cost feature¹⁶. This approach is developed due to the fact that large number of companies operates on such markets in which they cannot influence on market price. Market price is determined on the market and companies which operate on that market must adjust their costs to that market price. Therefore, in order to sustain desired level of profitability, companies in such business conditions can affect only on costs. So, cost reduction becomes one of the most important areas of management interest. Target costing is a method of identifying target cost of a product at anticipated market price and desired profit per product:¹⁷

$$\text{Target cost} = \text{Anticipated market price} - \text{Desired profit}$$

Target cost, determined on the anticipated market price and desired profit pre product, must be met in the long run. Therefore, accounting practice is driven by the requirements of the market place.¹⁸ In order to obtain the cost reduction to a target cost level, companies have two options:¹⁹

1. By integrating new manufacturing technology, using advanced cost management techniques such as activity-based costing and seeking higher profitability.
2. By redesigning the product or service.

Target costing as a specific costing method is employed in the second option. Design phase is the most important phase in a product life cycle, because in the design phase the number and types of product features are

16) Garrison, R.H., Noreen, E.W. (2000), *Managerial Accounting*, Irwin – McGraw Hill.

17) *Ibid.*

18) Lucey, T. (1996), *Management Accounting*, Letts Educational, London.

19) Blocher, E.J., Chen, K.H., Cokins, G., Lin, T.W. (2005), *Cost Management – A Strategic Emphasis*, McGraw Hill – Irwin, New York.

determined using cost and market considerations.²⁰ Therefore, the majority of product costs are determined in the design phase. Once a product is designed and gone into manufacturing process, it is very difficult to find ways to reduce costs.²¹

3.1.2. The Implementation of Target Costing

The implementation of target costing involves five steps:²²

1. Determine the market price (MP);
2. Determine the desired profit (DP);
3. Calculate the target cost (TC) at market price less desired profit (TC = MP – DP);
4. Use value engineering to identify ways to reduce cost;
5. Use kaizen costing and operational control to further reduce costs.

For many companies market prices are usually determined on the market by the influence of supply and demand. In modern business environment, companies have a little influence on market prices or not have at all. Therefore, they must adjust to the market prices instead of influence on it. In order to make that adjustment, companies define the desired level of profit and determined the target cost on the basis of market price and desired profit. Once the target cost is defined, companies are seeking ways and opportunities to reduce actual costs to target costs. In the process of reducing actual costs to target costs, companies conduct value engineering (in the case of a new product) or kaizen costing and operational control (in the case of redesigned products).

20) *Ibid.*

21) *Garrison, R.H., Noreen, E.W. (2000), Managerial Accounting, Irwin – McGraw Hill.*

22) *Blocher, E.J., Chen, K.H., Cokins, G., Lin, T.W. (2005), Cost Management – A Strategic Emphasis, McGraw Hill – Irwin, New York.*

Value engineering is used in target costing to reduce product cost by analyzing the trade-offs between different types of product functionality (different types of product features) and total product cost²³. The initial step in value engineering is to conduct consumer analysis during the design phase of the new or revised product in order to identify product functions that are preferred and desired by the consumers. Basically, value engineering identifies the most preferable product functions by its consumers and seeks for ways to reduce product costs but maintain the required level of product quality. This is all done in the design phase of a product, when most of the product costs can be changed. Therefore, in the design phase value engineering has the purpose to identify value-added and non-value-added costs. A value-added cost is a cost that, if eliminated, would reduce the actual or perceived value or utility consumers obtain from using the product²⁴. On the other hand, non-value-added cost is a cost that, if eliminated, would not reduce the actual or perceived value or utility consumers obtain from using the product. It is a cost that the consumer is unwilling to pay for²⁵. In the value engineering process, companies are trying to reduce both the value-added and non-value-added cost.

While value engineering is oriented to product cost reduction during the design phase, *kaizen costing* and operational control are focused on product cost reduction during the manufacturing product phase. Kaizen costing means continuous improvement in order to reduce cost and to improve manufacturing processes and the quality of a product and service i.e. to improve productivity and eliminate waste²⁶. If the majority of product

23) *Ibid.*

24) *Horngren, C.T., Datar, S.M., Foster, G. (2003), Cost Accounting – A Managerial Emphasis, Prentice Hall, New Jersey.*

25) *Ibid.*

26) *Horngren, C.T., Datar, S.M., Foster, G. (2003), Cost Accounting – A Managerial Emphasis, Prentice Hall, New Jersey.*

costs (approximately 85%) are locked in after the design phase, the rest of the product costs can be changed during the manufacturing phase and other product phases. Kaizen costing is the ongoing search for new ways to reduce costs in the manufacturing process of a product with a given design and functionality.²⁷ Cost reduction at the manufacturing phase can be obtained with the development of new manufacturing methods and by the appliance of new management techniques such as operational control, total quality management and theory of constraints.²⁸ Target costing and kaizen costing are two complementary methods whose basic aim is to reduce product cost by keeping the desired level of product quality and functionality. The major difference between these two methods is the product phase at which the method is oriented; target costing is oriented on the design while kaizen costing is focused primarily on manufacturing processes.

Target costing enable dynamic product profitability evaluation, since it is oriented to the future. In the design phase, the majority of product costs are defined. After the design phase, it is very difficult to reduce costs further. Kaizen costing can influence on approximately 15% of total product costs. Target costing is the crucial method for product cost determination, because it determines the product costs for all subsequent product phases. Therefore, it represents the form of feed forward control²⁹.

3.2. The Purpose and Application of Life-Cycle Costing

3.2.1. The Concept and Purpose of Life-Cycle Costing

While traditional costing methods are focused on manufacturing costs and allocation of indirect manufacturing costs on products, life-cycle costing considers all costs associate with the product during its life cycle. The purpose of life-cycle costing is to identify the „real“ costs of a product and to enable

27) Blocher, E.J., Chen, K.H., Cokins, G., Lin, T.W. (2005), *Cost Management – A Strategic Emphasis*, McGraw Hill – Irwin, New York.

28) *Ibid.*

29) Lucey, T. (1996), *Management Accounting*, Letts Educational, London.

the long term evaluation of product profitability. Therefore, life-cycle costing creates a basis for dynamic product profitability evaluation.

Life-cycle costing identifies main activities associated with the certain product and traces all costs associated with that products during the performance of each activity. The helpful tool in determining the costs of an activity is Activity-Based Costing. The appliance of ABC in life-cycle costing has the purpose to connect each cost associated with the product to the certain activity involved in product realization. Thereat, ABC is not focused only on indirect manufacturing costs, but on all costs, manufacturing as well as nonmanufacturing costs.

In today's business environment, managers are more interested in the total costs over the entire life cycle of a product³⁰, rather than only in manufacturing product costs. Life-cycle costing provides more useful cost information regarding products that traditional costing method since it considers all cost during the entire product life cycle. Therefore, cost information of life-cycle costing provides the qualitative basis for long term decision making regarding product pricing, evaluating product profitability, forming the product mix, eliminating the non-profit product etc.

3.2.2. The Application of Life-Cycle Costing in Evaluating Product Profitability

Life-cycle costing provides the information of costs of a product during the each phase in the product life cycle. But, in order to evaluate the product profitability, revenues are also must be traced over the product life cycle. So, when evaluating product profitability, two important and very different views of the product life cycle must be considered:³¹ the cost life cycle and sales life cycle. The cost life cycle gives information about costs of a product during its life cycle. The sales life cycle provides information regarding sales and revenues earned from selling the product on the market.

30) Blocher, E.J., Chen, K.H., Cokins, G., Lin, T.W. (2005), *Cost Management – A Strategic Emphasis*, McGraw Hill – Irwin, New York.

31) *Ibid.*

Therefore, the sales life cycle is the sequence of phases in the product's life in the market from the introduction of the product to the market, the growth in sales and finally maturity, decline and withdrawal from the market³². The sales life cycle is focused only on market phases over the product life cycle and thus recognizes the following phases:³³ introduction, growth, maturity, decline and withdrawal from the market.

Since the sales life cycle includes only market phases of the product life cycle and cost life cycle all product phases, the product life cycle from the viewpoint of cost life cycle and from the viewpoint of sales life cycle are differed i.e. the product life cycle is longer from the viewpoint of the cost life cycle because it includes into consideration product phases prior to its market phase.

The evaluation of product profitability can be determined during the market phases of the product life cycle, because in these phases product earns revenues. In all phases prior to the market phases, product generates only costs and therefore creates loss. But these costs, occurred in the phase of research and development as well as in the design phase could be covered by the revenues during the market phases of the product. Therefore, it is very important to combine cost and sales life cycle of a product in order to determine the appropriate long term product pricing policy. It is necessary to cover all costs associated with the certain products. Therefore, research and development costs and design costs occurred in the product phases prior to the market phase should be covered by revenue earned from selling the product during its market phases. Product profitability should be evaluated dynamically, during the whole product life cycle. Dynamical product profitability evaluation enables the identification of the real contribution of a certain product to the company's income and profitability. In order to set up the appropriate price of a product in the certain product phase, the corresponding costs need to be considered as well as the situation on the product market. Usual pricing policy in the appropriate product phase is shown in the following table.

32) *Ibid.*

33) *Ibid.*

Table 1. Pricing Policy According to the Sales Life Cycle Phase

<i>Sales Life Cycle Phase</i>	<i>Market Situation</i>	<i>Costs of a Product</i>	<i>Pricing Policy</i>
Introduction	Little competition, Sales increase	High costs (due to R&D costs, manufacturing costs and marketing costs)	High price (because of demand and differentiation)
Growth	Rapid sales increase, competition increases	High costs (due to differentiation, innovation and performance)	High price (because of demand and differentiation)
Maturity	Slower sales increase, competition declines, required quality and functionality of a product	Cost control, quality costs occurs	Price falls and is set by a competitive market
Decline	Sales decline, competition declines	Cost control, cost reduction	Low price

Source: Blocher, E.J., Chen, K.H., Cokins, G., Lin, T.W. (2005), *Cost Management – A Strategic Emphasis*, McGraw Hill – Irwin, New York.

Strategic (long term) pricing policy changes over the product life cycle. In the first phase, price is set at the relatively high level in order to recover high research and development costs as well as to take advantage of product differentiation and the new demand for the product.³⁴ In the

³⁴ Blocher, E.J., Chen, K.H., Cokins, G., Lin, T.W. (2005), *Cost Management – A Strategic Emphasis*, McGraw Hill – Irwin, New York.

second phase, price is still set at high level because the company is trying to increase income and profitability with the new product on the growing market. In the third phase, price begins to fall and is set at the market level. In this phase company conducts cost control in order to keep the desired level of profitability without jeopardising product quality. Finally, in the fourth phase, price is set at the relatively low level. In this phase company is trying to extend product life. The key point for product survival is the cost reduction as well as the effective distribution network. Target costing and life cycle costing are used in the third and fourth phase in order to enable cost reduction since the company has no longer influence on the product price.³⁵

4. The Integration of Static and Dynamic Approach of Cost Management

In order to obtain fair and objective evaluation of product profitability, both static and dynamic cost management approaches need to be combined. Traditional cost accounting methods (such as job order costing and process costing) were developed in the time of industrial revolution when the most desirable information by the managers was information of product cost. In that time, the majority of total costs were direct manufacturing costs, while the other costs (indirect manufacturing costs, sale and administrative costs) did not take the high portion in total costs. So, traditional cost accounting methods were, and still are, focused primarily on manufacturing costs and the way that indirect manufacturing costs are allocated on products or services (cost object). Since indirect manufacturing costs were not significant, the allocation of indirect manufacturing costs were based on certain cost allocation base that links indirect manufacturing costs with manufacturing process (such as direct labour hours, machine hours etc.). But, business conditions an environment have significantly changed due to the innovation, competition, automation of production processes, globalization as well as the changes in consumer's preferences and desires. Today's business conditions are complex

35) *Ibid.*

and turbulent. Companies don't have any or have a very small influence on market prices and are permanently under pressure of cost reduction and keeping the desirable level of product quality in order to satisfy consumer's preferences. These new business conditions changed the manager's needs for information which led to the development and implementation of new costing methods. Traditional cost accounting methods can provide the static product profitability evaluation i.e. they can provide the information regarding the cost of a product in a certain accounting period. This information is sufficient for managers in static business environment and for short-term decision making. But, in modern business environment, this information is insufficient. In order to obtain cost optimization and maintain the desirable level of product quality, managers require information about total costs not only manufacturing costs. Traditional costing methods, which are focused on manufacturing costs and determination of cost of a product, couldn't provide appropriate cost information in modern business environment. The first significant change in costing systems was done by the implementation of ABC (Activity Based Costing). Due to the automation of manufacturing processes, the cost structure of manufacturing companies has dramatically changed. Direct labour costs have significantly decreased³⁶ or eliminated at all, but at the same time the portion of indirect manufacturing costs have significantly increased. The problem that occurred was the following: how to achieve the reliable allocation of indirect manufacturing costs to products or services? The solution came up with ABC method. ABC requires that indirect manufacturing costs need to be allocated on activities in the manufacturing and then allocated from the activities to product on the basis of product consumption of certain activity.³⁷ The allocation of costs from activities to products were carried out through the appropriate cost driver which linked the activity with certain product i.e. which indicated the product usage of certain activity. In ABC

36) Lucey, T. (1996), *Management Accounting, Letts Educational, London.*

37) Horngren, C.T., Datar, S.M., Foster, G. (2003), *Cost Accounting – A Managerial Emphasis, Prentice Hall, New Jersey.*

method, indirect manufacturing costs are allocated to products or services through large number of cost drivers, not by one cost allocation base like in traditional costing systems. That enabled the more reliable determination of product costs and brought back manager's confidence in company's costing system. Evaluation of product profitability with the appliance of ABC was more accurate and reliable than with traditional costing methods. ABC was a certain revolution in cost and managerial accounting (and in costing systems of companies as well) and it was a link between static and dynamic approach of cost management and product profitability evaluation.

The implementation of ABC was a first step to modern cost management and to dynamic evaluation of product profitability. ABC was firstly focused on manufacturing process and had the purpose to provide the objective allocation of indirect manufacturing costs to products. In order to apply ABC at the level of the whole company, all relevant activities within the company should be determined and every cost that occurs in the company should be linked or allocated to certain activity (or activities). The purpose of applying ABC to whole company is to identify the cost of a certain activity i.e. to identify which activities generate the high costs. The information of activity costs is very useful for managers trying to reduce or to optimize costs. Tracing costs to activities enabled ABM (Activity Based Management). Due to the information about the cost of a certain activity, managers can decide which activity should be maintained within the company and which should be outsourced. ABC i.e. ABM enables the implementation of modern costing methods such as Target costing and Life-Cycle Costing. Modern costing methods (cost management methods) are focused on all costs associated to product or services, not only on manufacturing costs. Due to the modern business conditions, managers are now interested in total costs of a product, manufacturing and nonmanufacturing. Static product profitability evaluation, obtained with traditional costing methods, can be relevant for short term decision making, not for long term. Managers require the information of product profitability through the whole product life, because that way they can evaluate which products have the greatest contribution to company's

income. Static product profitability evaluation doesn't provide the whole picture about the product's contribution to company's income since it is oriented to one specific accounting period (usually one year). On the other side, dynamic product profitability evaluation considers all costs associated with product from research and development to withdrawal from the market and all revenues product earns through its life, enabling therefore the more clearer and more reliable picture of product profitability and its impact on company's income. But, static and dynamic product profitability should be combined.

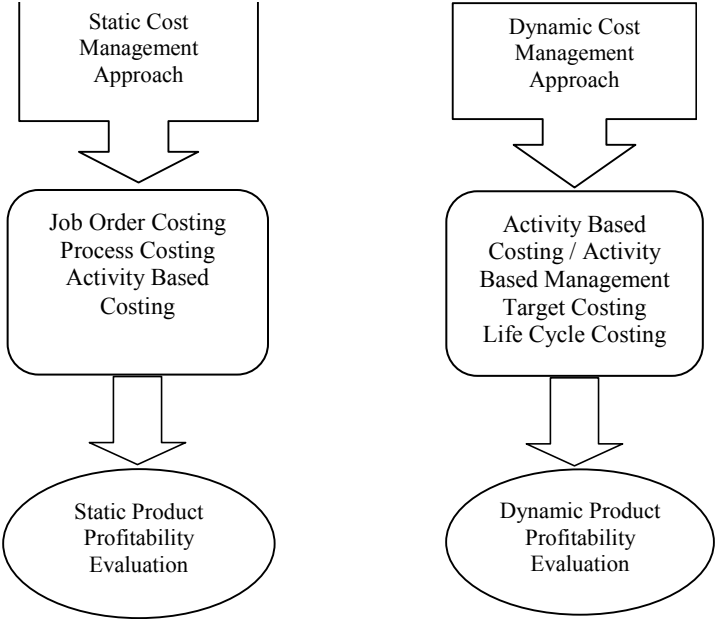


Figure 4. Static vs. Dynamic Cost Management Approach

Although static product profitability evaluation is focused on manufacturing products, it can indicate the phase of a product life in which a certain product is. Besides, static approach of cost management must exist because of external financial reporting. Dynamic product profitability evaluation provide management with the information of product profitability through its whole life enabling the useful basis for long term decision making

regarding the product prices, production quantity, product mix etc. Costing methods used for dynamic product profitability evaluation are partially on ABC which can be used for both, static and dynamic evaluation of product profitability. In static cost management approach, ABC is used in order to determine the appropriate cost of a product. In dynamic cost management approach ABC (or ABM) is used in order to determine the cost of a certain activity within a company which afterwards can be used in target costing as well as in life-cycle costing. Target costing determines the target cost of a product which includes the target material cost, target labour cost, target indirect manufacturing cost, target sale and distribution cost. Target indirect manufacturing and nonmanufacturing costs can be determine according to activities and in such determination ABC/ABM has the key role. The comparison of actual activity cost (determined by ABC/ABM) and target activity cost indicate whether the cost of activity is within the targeted level. ABC/ABM can be used in life-cycle costing as well. Since life-cycle costing considers all cost associated with products within the whole product life, this method requires the identification of all activities associated with product through its life and tracing cost according to identified product activities within the product life. ABC is a useful tool for identification of product activities and for tracing costs associated with certain product activity. Therefore ABC enables the more qualitative implementation of life-cycle costing.

Static and dynamic cost management approach is linked and therefore compatible. Dynamic product profitability evaluation can be provided only if static product profitability evaluation is based on appropriate costing methods. For the purpose of decision making process regarding the product prices, product mix, eliminating the product line, managers must considered both, static and dynamic evaluation of product profitability. According to this, the company should have implemented and integrated static and dynamic cost management approach.

Static cost management approach (represented by job order costing, process costing and ABC) is focused primarily on manufacturing. Target costing as one method of dynamic cost management approach id focused

primarily on design, because in this activity the majority of other costs are determined and therefore locked in³⁸. Life cycle costing combined with ABC/ABM is focused on all activities associated with a product during its life.

5. Conclusion

This paper is dealing with static and dynamic cost management approaches and their impact on product profitability evaluation. Static cost management approach is based on traditional cost accounting methods and ABC whose focus was on manufacturing costs and ways of indirect manufacturing costs allocation to products or services. The basic purpose of traditional cost accounting methods is the determination of cost of a product and evaluation of product profitability. When business conditions and environment have changed due to automation, innovation, competition, globalization and changes in consumer's preferences which led to the increase of indirect manufacturing costs, traditional cost accounting methods became inappropriate for product cost determination and therefore for product profitability evaluation. In order to achieve more reliable product costs, ABC is introduced. ABC traces indirect manufacturing costs to activities and then allocates these costs from activities to products according to identified cost drivers. ABC method accomplished its purpose of reliable product cost determination. Afterwards this method is used for determination of activity costs within the whole company, which enables the implementation of dynamic cost management approach. Dynamic cost management approach is represented by target costing and life cycle costing. Target costing determines the target cost of a product based on anticipated market prices. Life cycle costing is focused on all costs associated with a product during the whole product life.

In order to obtain the qualitative evaluation of product profitability, both, static and dynamic evaluation of product profitability should be

38) *Hornngren, C.T., Datar, S.M., Foster, G. (2003), Cost Accounting – A Managerial Emphasis, Prentice Hall, New Jersey.*

considered. Dynamic evaluation of product profitability considers all costs associated with certain product, manufacturing and nonmanufacturing. Static evaluation of product profitability considers only manufacturing costs. In modern business environment, managers are interested in total costs of a product (manufacturing and nonmanufacturing costs). Dynamic evaluation of product profitability enables the identification of product which has the greatest contribution to company's income. Managers require information of product costs and revenues through the whole product life. Therefore, they can determine the real product profitability. Although static evaluation of product profitability refers to the particular accounting period, it is useful in order to determine the phase in which a certain product in. The complete picture regarding product profitability evaluation can be achieve only by integration of static and dynamic cost management approach i.e. by combining the static and dynamic evaluation of product profitability.

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