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Modern cost management approach for development projects

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Abstract

Modern methods of cost management have already undergone considerable development since the early 1960s until today, but there is still the possibility of eliminating the weaknesses of these modern methods, mainly due to the emergence of a new trend in digitization. This is currently on the rise mainly in the automotive and electronics sector and will continue to expand over the next period. Currently and in the years to come, many other new positions and areas will have to be covered by Industry 4.0 as such, not only to improve productivity, flexibility, quality and speed in manufacturing area but within production as a whole. Research and development are areas that are key to increasing the added value of a product, so it is very important to pay maximum attention to them, mainly because of the cost reduction, but also the overall not only economic impact.

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1. Introduction

In general, every business is a systematic activity operated by an entrepreneur for profit. For an optimal and steady profit-making process, businesses need to know their planned costs in the first place and allocate them in the most efficient way for optimal use. This brings us to the core of modeling the target costs as such, a process that should not be underestimated by businesses, primarily to achieve the highest possible profit.

Product modeling of product targets is defined by basic boundaries, which are, on the one hand, aspects of a technical nature, such as product specifications, and on the other hand, organizational aspects in which we must plan and manage all the processes and activities necessary to successfully meet the model costs.

2. Modern cost management methods

Modern methods for modeling product target costs today include two methods, which are able to use the costs effectively at their optimum level. These include:

- 1) Target Costing (TC)
- 2) Life-Cycle Costing (LCC)

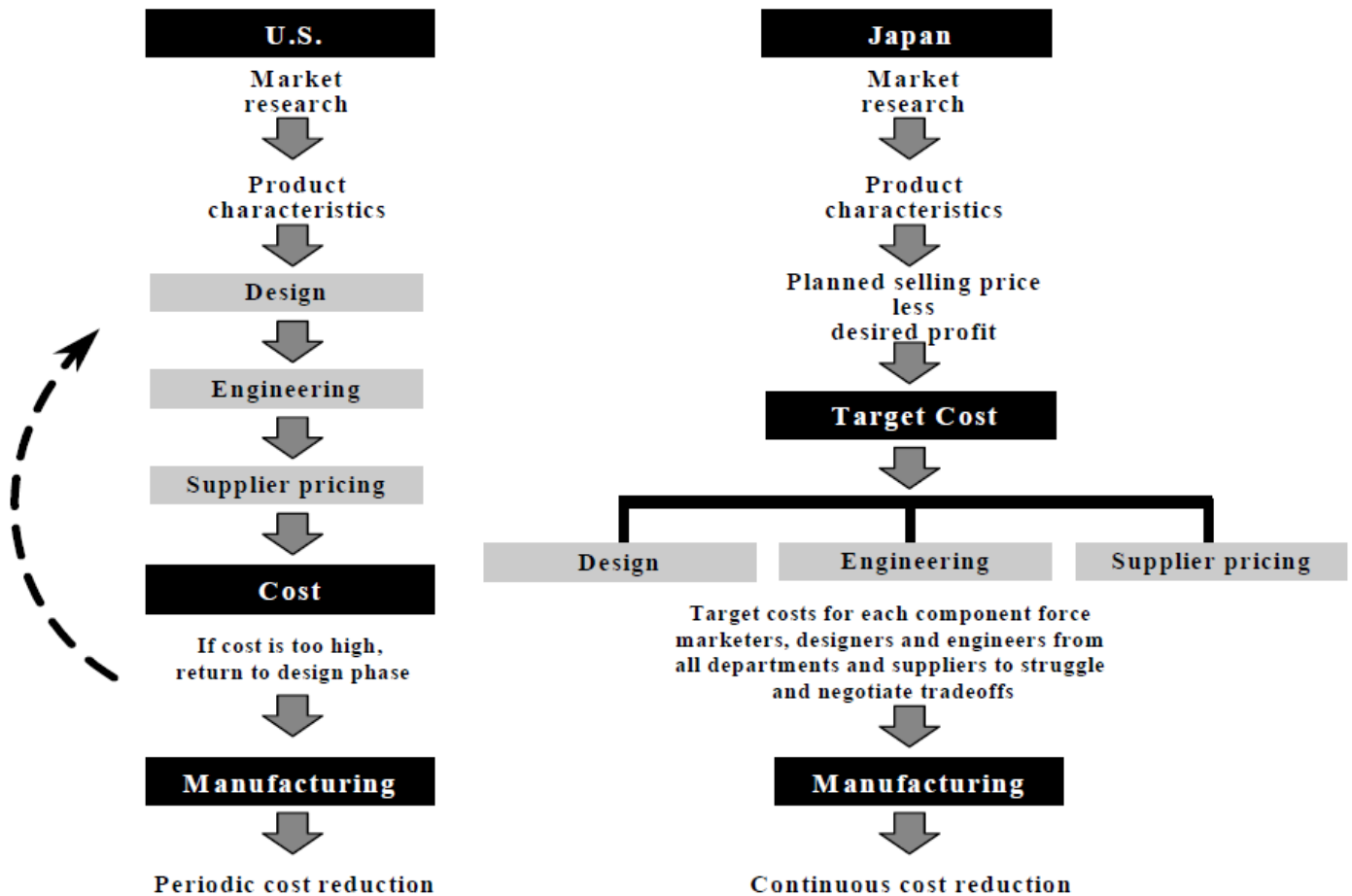


Figure 1. Comparison of Western and Japanese Cost Management Methods [1].

Figure 1 is comparison model between Western and Japanese differences of Cost Management Methods.

A full-fledged TC approach began in the post-World War II era when many resources were limited. During this period, Americans created the concept of maximizing required product attributes while minimizing product costs. This process has become known as "Value Engineering (VE)". Later the 1960s, VE was combined with the idea of influencing and reducing product costs at the earliest stages, such as during the product planning and development phases. The first use of VE in Japan, known as "Genka kikaku", occurred in Toyota in 1963. Later, the process became known in Japan as "Genka kikaku," which in translation is "Target Costing." [1]

3. Development project cost modeling

The modeling of target product costs is not only one of the priorities for today's businesses, mainly because of the timely identification of the costs of the product and consequently for the fulfillment of these scheduled costs or the detection of possible deviations in the implementation of the cost plan. Each enterprise has its own know-how and its own internal procedures for scheduling product costs, yet none of the modeling methods for target product costs is currently capable of effectively planning and subsequently

allocating the cost of products at its early stages of development or design character. According to the available literature, such costs are allocated to products using a specific budget which is then drawn in the given period. According to the available information from practice, such costs are dealt with in a similar way, e.g. by creating a certain budget, which is only a prerequisite for the scope of the work or, in a better case, by creating a plan that should cover the extent of the necessary work to complete the development or construction.

Nevertheless, the experience or comparison of projects in planning such costing operations with real values is often erred. There are many reasons, for example, in which each project, the current procedures do not allow these changes to quantify, and therefore it precisely determines the possible deviations that a project may have, or the plan is created by a person who never managed such a type of project earlier. Another reason that significantly affects the cost is that each customer is subjective and as a result, the approach to the project solution or the specific outputs and procedures required to perform the work can vary greatly. I quote: "Strategic costs can reach up to 40% of target costs in some sectors (such as the automotive industry). An important constraint of TC is the fact that it's working with future, estimated costs and expected production volumes" [2]. For these reasons, these phases require greater emphasis on planning and allocation of these costs. Strategic management accounting can now significantly affect the overall cost of products, by focusing on eliminating possible side effects of these methods (TC and LCC) already in the early stages of products. These methods of strategic cost management have had a noticeable development since the beginning of the 20th century. However, when the basic principles of these methods were applied in Bata's factories, the focus on pre-production stages did not show any noticeable development in the precise allocation of research and development costs even though enterprises in pre-production stages has greater possibilities to influence the overall future costs of these products. This trend is likely to be caused by the very difficult allocation of these costs to individual activities and processes [3].

For this reason, it is necessary to focus on these pre-production stages. In these development stages there are not only planned and proposed costs of production aspects but also strategy cost, which are not clearly planned or allocated. Still, these pre-production stages are seen as one of the phases of modern cost management methods where there is a reduction in production costs and costs for users, or the recycling and disposal of a product that is a part of these methods. However, it is necessary to consider this part as a separate, which should also save costs. Considering the constant pressure on these pre-production phases and the growth of Industry 4.0, the onset of digitization or constant globalization of the market, it is necessary to see these phases as a separate whole, in which it is possible to use some of the modern cost management methods we can also save a certain amount of costs. This approach will be key in the coming years for engineering companies that are linked to manufacturing companies and the overall manufacturing industry and the R & D sector.



Figure 2. Development of modern cost management methods [Own design].

Figure 2 is development process of modern cost management methods where are mentioned only important milestones.

4. Conclusion

According to connection of Industry 4.0 to engineering environment, it is necessary to stay productive, flexible and with appropriate quality. Also, according to globalization and competitive market, it is necessary to be fast, cheap and accurate enough for satisfaction and passion of our customer. This leads to a progressive way in planning and usage of some elements of modern cost methods such as TC and LCC. These methods can bring to engineering different view on whole environment and more of the above-mentioned elements such as cost saving, productivity, quality and even better relationship with customer. Modern cost management methods are very important to the current market. This is not only because of the set-up the required product before the start of the entire process of development, production, sales, operation till final disposal, but it mostly due to the accurate planning of the entire product, including plan of costs, its monitoring and implementation of this plan. Only in the case of a clearly defined product are we able to consider whether the product is able to reach all of its goals before starting the whole process.

5. Acknowledgement

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