



Target costing: what do we know, and what do we still need to know?

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ABSTRACT: In a highly competitive market where customers expect greater value, companies cannot rely solely on innovative products to stay ahead; achieving success also depends on competitive pricing. Therefore, it is crucial to carefully manage and optimize the costs associated with new product development. Every innovative product requires the execution of an innovation project, which naturally involves various uncertainties and risks. To address these challenges, companies are increasingly turning to a strategic tool called target costing, which primarily serves as an information generator. In light of the continued interest in this method, this study aims to examine its emergence, conceptual foundations, methodology, and the internal and external factors that facilitated its adoption, as well as its associated technical and managerial tools. Finally, the study will assess how this tool addresses both the cost-value relationship and the concept of value co-creation.

KEY WORDS: Target costing, technical tools, managerial tools, value creation, value co-creation.

INTRODUCTION

The publication of Porter's bestsellers (1980, 1985) sparked widespread discussion about the critical insight that companies should not simultaneously pursue both cost leadership and differentiation strategies. This perception has been widely disseminated among Western enterprises. In contrast, Japanese managers have shown significant resistance to the idea that companies should not pursue both strategies concurrently. In response, Yutaka Kato emphasizes that a thorough analysis of the major players¹ in the Japanese economy reveals shared characteristics among these organizations, with almost all companies prioritizing both cost management and differentiation to bolster their competitiveness (Kato, 1993).

Cost leadership involves several concepts, specifically economies of scale, productivity gains, and flow management. On the other hand, differentiation aims to enhance the value created for the customer through key elements such as quality, functional definition, service, and lead times (Lorino, 1994). As a result, differentiation fundamentally hinges on the originality of the product, which is largely achieved via innovation (Colin, 2000). ***This raises the question: How do companies manage to offer innovative products while controlling the associated costs?***

To quote Lorino (1994): *'The development of new products represents a distinct type of project, typically defined by a high level of technical complexity and the necessity for innovation.'* Indeed, the unique nature of these projects entails a high degree of complexity, risk, and uncertainty, which can jeopardize their success and increase the likelihood of failure. Consequently, the success of innovative projects depends on effectively managing the risks, ambiguities, and uncertainties they face.

Given this, modern organizations use a specific management control tool known as the target costing method to address various uncertainties, like technological and market uncertainties, and to manage risks associated with innovation projects, particularly internal risks. Due to its purely informational nature, this method plays a central role in the information generation process, which relies on effective collaboration between marketers and research and development engineers from the outset of the

¹ Many Japanese companies, such as Toyota, Nissan, Matsushita, and Sony, are seen as both cost leaders and differentiators (the usual Japanese approach). If you classify Toyota as a cost leader, and it is indeed a cost leader, how do you explain the Lexus (a luxury car) in its product portfolio? Many people believe Sony's products are unique. Is Sony a differentiator in the market? Yes, it is. But Sony is a company which is extremely cost conscious, as many knowledgeable Japanese and even western Sony-watchers know. Looking carefully at the operation of the leading Japanese companies, you notice they are all cost conscious companies, but at the same time they are pursuing differentiation strategies (Kato, 1993).

innovation process. As a result, it significantly contributes to value creation for customers by effectively addressing their needs. To fully capitalize on the benefits of the target costing method, it is essential to employ a range of technical and managerial tools. (Lorino, 1994; Ansari et al., 1997; Dekker and Smidt, 2003; Ellram, 2002; Hibbets et al., 2003; Cooper and Slagmulder, 1997; Ax et al., 2008; Wu et al., 2013; Monden and Hamada, 2000; Malik and YeZhuang, 2006)

In light of the paramount importance of this management control tool, this article seeks to explore its context of emergence, define its conceptual framework, elucidate its operating mechanism, provide a detailed analysis of the technical and managerial tools necessary for its effective implementation, clarify the responses of the target costing method to the value-costs relationship, and, finally, examine the implications of the emerging value creation paradigm—commonly referred to as 'value co-creation'—on management control tools, with a particular focus on the target costing method.

1. A brief history of 'Genka-Kikaku'

Towards the end of World War II, the world experienced an exceptional shortage of resources, prompting American companies to develop a new approach called 'value engineering.' This approach is geared toward maximizing customer satisfaction by incorporating desired key attributes while reducing the costs associated with new product development (Rösler, 1996; Leahy, 1998). Given the expected benefits of using this technique, Japanese companies widely adopted it to withstand fierce local competition. The key principle underlying this technique is that the potential for cost reduction is often substantial during the initial stage of new product development (Buggert & Wielpütz, 1995). Furthermore, value engineering was popularized under the name 'Genka-Kikaku,' a concept initially introduced by Toyota and discreetly maintained until 1978 (Tani et al., 1996; Tanaka, 1993). Subsequently, 'Genka-Kikaku' was adopted and translated as 'Target Costing' by Anglo-Saxon countries. The term is now used globally (Feil et al., 2004).

Kato (1993) also emphasizes, from the same standpoint: *'Many western people believe it is not effective to pursue the two different business strategies of cost leadership and product differentiation simultaneously. This is primarily because of Porter's best-selling books (Porter, 1980, 1985). These have sold well in Japan, but interestingly there is a very limited number of Japanese companies which utilize this framework. In Japan there are hundreds of perspectives on strategy formulation. It is, therefore, somewhat difficult for the Japanese to understand why so many western companies rely on Porter's framework. If being inordinately cost conscious means being a cost leader, Porter's explanation is understandable. But each Japanese manager has his or her own definition of cost leadership, although some overlap exists.'*

Moreover, the Japanese have always managed to offer high-performance products at reasonable prices, and this is where the value of target costing is ultimately realized. It is commonly accepted that target costing reduces the costs associated with new product development throughout all phases by ensuring **quality**, **reliability**, and, ultimately, **meeting customer requirements**. This process particularly involves examining ideas and alternatives focused on cost-reduction potential. The successful adoption² of this method is closely tied to the advantages it offers, as well as other **environmental**³ and **organizational**⁴ factors that motivate its use (Kato, 1993; Tani et al., 1994; Tani, 1995; Feil et al., 2004; Huh et al., 2008; Rattray et al., 2007; Cagwin & Bouwman, 2002; Hamood et al., 2011).

Initially, companies resisted adopting target costing, and this resistance was driven by two main factors. First, a study conducted by Johnson and Kaplan (1987), which examines the causes of the decline in competitiveness of American firms compared to their Japanese counterparts, concluded that the accounting system used by American companies—relying on purely financial indicators—prioritizes shareholder value creation and adopts a short-term perspective. Nevertheless, according to Bouquin (2000), the target costing method focuses on customer value creation, productive processes, and the product lifecycle. Second, Deglaire and

² Given the importance of target costing, this method has been adopted by numerous companies across diverse sectors. In this context, Kato observed that the history of target costing within Japanese companies spans several decades, leading to a high adoption rate. For example, 80% of assembly companies reported using it. Another study by Tani (1994) shows that 60.6% of Japanese manufacturing firms listed on the Tokyo Stock Exchange employ target costing practices. Additionally, Chenhall et al. (1998) indicate that 38% of Australian manufacturing companies use this method. In India, the adoption rate is 35% (Joshi, 2001), while German manufacturing firms, according to Dekker et al. (2004), show an adoption rate of around 59%. Finally, adoption rates for New Zealand, Turkish, and Bahraini manufacturing companies are 38.71% (Rattray et al., 2009), 30% (Kocsoy et al., 2009), and 61.5% (Juhmani, 2010), respectively.

³ Such factors include competitive intensity, technological and market uncertainties, cultural factors, the level of competitiveness, and, finally, the adopted strategy (Hamood et al., 2011).

⁴ These include the size of the organization, the encouragement of top management, and organizational capabilities (Hamood et al., 2011).

Dumarest (1993) clearly outline other reasons for non-adoption, which can be summarized as follows: *the lack of originality of the method*⁵, its *simplistic appearance*⁶, and *the inconsistency in its presentation by the Japanese* (Meyssonier, 2001).

2. Structure and functioning mechanism of (T.C)

After reviewing the advantages and key factors motivating the adoption of target costing, it is appropriate to prioritize the subsequent question: *So, what does 'target costing' actually mean?* The literature provides two opposing answers. Proponents of the first, so-called *reductionist view* argue that the purpose of target costing is to determine production costs during the design phase (Cooper, 1994; Cooper & Slagmulder, 1997). That said, target costing is part of a suite of tools used by Japanese companies, including value analysis and Kaizen costing. In contrast, Horvath et al. (1993) and Lorino (1994) suggest that target costing is a comprehensive cost reduction program that features two key tools: *'value analysis'* and *'Kaizen costing.'*

Indeed, while target costing is used to determine target costs and estimated costs, value analysis focuses on reducing the gap between the two during the design phase, with Kaizen costing taking over in the development phase. A large number of definitions have been proposed by researchers, particularly Cooper (1995) and Tanaka (1993); however, the one that best matches our understanding is presented by Kato (1993) and cited by Lorino (1994): *'Target costing is not actually a cost assessment technique at all. It is more of a comprehensive cost-reduction program that begins even before the initial product plans have been created. It is an approach aimed at reducing the costs of new products throughout their entire life cycle, while meeting consumer requirements for quality, reliability, and other factors, by examining all possible cost-reduction ideas during the planning, development, and prototyping stages. It is not just a simple cost-reduction technique, but a comprehensive system of strategic profit management.'*

A meticulous understanding of the definition clarified by Kato (1993) requires highlighting the operating principle of the target costing method. As stated by Lorino (1994), the shift from a demand economy to a supply economy has disrupted the logic of classical reasoning, which relies on the assumption that *'the selling price is the sum of the target cost and the target profit.'* Still, this view is considered inadequate and outdated, particularly in a context characterized by increased complexity and intense competition, which have led to profound changes.

Going forward, the selling price is seen as a market-imposed constraint, while the company retains the ability to determine its target profitability in line with its strategic goals. Consequently, cost is not seen as an outcome, but rather as a predetermined constraint, requiring the mobilization of efforts necessary to achieve the desired results. **Given the characteristics briefly outlined, target costing stands in significant contrast to traditional management control tools. Nevertheless, there is a strong need for some degree of complementarity.** From now on, cost calculation is derived from the ensuing relationship: *'Selling Price – Target Profit = Target Cost.'* As previously mentioned, in a supply-driven economy, the selling price is a piece of information that the company is expected to gather from the market (Lorino, 1994).

Kato (1993) emphasizes that the determination of target profit stems from the company's strategic planning: *'The development of a new product must be in harmony with the management and strategies adopted by the company. The Japanese target costing method determines target profits based on medium-term profit planning, reflecting the company's strategies and management style over a period of three to five years. It is extremely important to note that the target profit is not a target or an expectation, but rather a collegial arrangement, driven by all parties concerned with its achievement.'*

The determination of the selling price and target profit allows the company to calculate the target cost; yet, the numerical value represents a quantified expression of a cost to be achieved. Consequently, what requirements must be met throughout the costing process? **First, the target must be realistic to avoid becoming a source of demotivation** (Angeniol, 2006). **Second, Lorino (1994) accentuates the importance of negotiating the target with stakeholders. Finally, renegotiation is strongly recommended in situations involving radical changes** (Cooper & Slagmulder, 1999).

3. Organic and functional decompositions of (T.C)

In the view of Peter Horvath (1993), the overall target cost is considered to be aggregated to assist decision-makers during the design and development phases. As a result, an elementary decomposition of the target cost becomes clearly evident. The literature reveals two methods for breaking down target cost into its various components: the *organic decomposition method* and the *functional decomposition method*.

The **first method** pays particular attention to incremental modifications (Lorino, 1994); in other words, *'Organic decomposition applies only to new products that have a certain similarity with existing products in terms of design and technologies used. This method is not recommended for innovative products, as designers tend to focus on materials rather than functions'* (Tanaka, 1993). To better illustrate the specifics of organic decomposition, Swenson et al. (2003) provided a concrete example involving the company *Caterpillar*.

The **second method** reasons in terms of function. In this sense, Lorino (1994) adds: *'The product is viewed as a combination of functions, and the value of each component is assessed in terms of its contribution to the realization of each function. This allows*

⁵ *"The target costing method relies on existing tools such as value analysis and Kaizen costing (Meyssonier, 2001)."*

⁶ *"The authors' presentation did not highlight its effectiveness (Meyssonier, 2001)"*

for maintaining a market-oriented approach coherently. The functional decomposition method, which is more delicate to apply, is more consistent with the general philosophy of target costing, as it starts from the customer and the market. The functions of the product are essentially what we previously referred to as services: these are the needs of the consumer that the product must satisfy, the services that the product must provide to its user.'

Indeed, before determining the numerical value of the target cost, the company calculates the estimated cost. This calculation does not require prior market research but is grounded in *parametric methods* (Pendaries, 2011; Lorino, 1994), *analogical methods* (Glade, 2005), and *analytical methods* (Bellut, 1990; Lorino, 1994; Angeniol, 2006).

4. Target costing approach: what is it, and what's special about it?

In his article titled '*Le target costing: un état de l'art*,' Professor François Meyssonier presents the overall approach to the target costing method as adopted by researchers such as Tanaka (1989), Yoshikawa et al. (1993), CAM-I & SMAC (1994), Tani et al. (1994), and Fisher (1995). This approach consists of five key stages:

(1) Marketers identify customer needs with the goal of developing a product that meets those requirements in terms of price and functionality, while ensuring that this is done within the framework of strategic guidelines, particularly considering the positions of competitors.

(2) The company determines the target cost by subtracting the target profit from the price set by the market.

(3) Collaboration between internal stakeholders and external partners is considered essential for establishing the primary and secondary functions required by customers. This is achieved by leveraging consultation and the refinement of multiple proposals. For these reasons, a deep understanding of the process and associated costs is crucial.

(4) The company assigns a cost level to each component that must not be exceeded, contingent upon its contribution to the value creation process. Therefore, this is a crucial step that translates the needs expressed by customers into technical solutions.

(5) Target costing is a comprehensive cost-reduction program that begins at the design phase and continues over the span of the manufacturing phase. Consequently, the target costing method employs additional tools to bridge the gap between the target cost and the estimated cost, namely value engineering, value analysis, Kaizen costing, and, finally, activity-based costing.

5. Target costing viewed as a suite of technical and managerial tools

From the above, it is clear that target costing is a comprehensive program addressing the entire product lifecycle, from design to manufacturing. To achieve this, both technical and managerial tools are essential, leading to the conclusion that the simultaneous adoption of these tools is crucial for implementing the target costing method (A. Taylor, 1997; Philippe Lorino, 2003). Accordingly, the following subsections focus on key technical tools, like **value analysis** and the **Kaizen philosophy**. Finally, the last subsection outlines important managerial tools that significantly contribute to the successful implementation of the target costing method.

Value analysis: what are we talking about? and why?

Value analysis⁷ is a structured method that enhances value and encourages the selection of the most effective solutions (Romano et al., 2010). Additionally, it is widely recognized for its ability to reduce costs, improve quality, and foster participation in decision-making (Rich and Holweg, 2000). Renowned researchers, among them Ho et al. (2000) and Libert et al. (2000), define value analysis as an organized and creative methodology that utilizes a functional approach to improve the value of a product or service. Similarly, Dove (1996) and Fowler (1990) emphasize that value analysis provides a means to connect, align, and maximize the effectiveness of the value chain. More recently, value analysis is considered a method rather than merely a technique for two main reasons. First, it is an organized approach intended to improving and creating value. Second, value analysis employs a range of techniques to achieve its goal (Pires & Avila, 2015).

The standard (Afnor NF-X50-150) defines value analysis as: '*a method for enhancing business competitiveness, organized and creative, aimed at satisfying the user's needs through a specific approach to the design of products, systems, and services, which is functional, economical, and multidisciplinary. It is an operational method for stimulating and organizing innovation. A method is a set of tools organized together according to a certain approach.*' For Bernard, this definition illustrates the fallacy of the widely held belief that the ultimate goal of this method is to reduce costs, whereas, in reality, customer satisfaction takes precedence. After

⁷ Value analysis emerged in the late 1940s in the United States, thanks to the work of its founding father, engineer Lawrence Delos Miles. He observed that the American giant General Electric was incurring costs that did not add value for the customer and that eliminating these costs was a prerequisite for meaningful progress. L.D. Miles's efforts were widely applauded, as they coincided with the post-war period, characterized primarily by fierce competition, which led to a decrease in prices and a subsequent erosion of profit margins (Pendaries, 2011). To effectively address this situation, merely reducing procurement costs is not sufficient; it must be accompanied by actions taken from the beginning of the product life cycle, particularly during the design phase.

identifying the desired functions, substantial effort is made to guarantee that costs are proportional to the importance of each function. In other words, *value analysis is dedicated to maximizing the value of the product rather than merely reducing its cost.*

The implementation of a value analysis (V.A.) project must be carried out by a multidisciplinary team, led by an experienced coordinator, who makes sure that decision-makers are kept informed about the project's progress and any recommendations regarding solution choices. Moreover, it is crucial to involve the value analysis team from the very beginning of the design phase, while also ensuring that the importance of including the end user is not undermined (Tollenaere, 1998).

What are the critical factors leading to value analysis adoption?

The factors driving the adoption of value analysis can be categorized into two types: endogenous and exogenous. **On the one hand**, the endogenous factors comprise: (1) Ignorance of '*best practices*' can lead to the development of a suboptimal design. (2) The use of new technology that modifies the design initially established by the designers can lead to better performance. (3) The failure to question traditional practices leads the designer to advocate for a particular solution without having tested its effectiveness. (4) Time pressure is accompanied by insufficient or inadequate analysis during the planning phase of the new product's features and associated costs. (5) Manufacturing is a process that rarely results in a perfect product, which leads the company to implement corrective measures and actions. (6) Adapting products intended for export to the requirements of the host country is essential for success. (7) The redesign and improvement of the product throughout its lifecycle provide significant financial returns.

Rich and Holweg (2000) advocate the idea that if the product is well designed from the outset, it will deliver superior value to the customer by incorporating the desired features at the lowest cost. Therefore, value analysis is an essential method for maintaining superior value for the customer with periodic reviews, which serve to continuously improve the design process. *Ipso facto*, it becomes a strategic capability that solidifies the differentiation of the company's products from those of its competitors. At the very least, the value analysis process helps overcome design weaknesses by eliminating costs associated with non-value-adding activities.

On the other hand, the exogenous factors driving the adoption of value analysis are numerous and consist of: (1) The market-imposed selling price encourages companies to continuously reduce the costs associated with developing new products to unlock a higher profit margin. (2) The advent of e-commerce, along with the opening of borders, has led to vigorous competition focused on reducing prices for goods and services. (3) ISO 9000 certification requires companies to undergo a formal design review to verify product quality. (4) Companies strive to integrate new technologies to improve the reliability and quality of their products, all while adhering to the constraint of cost reduction. (5) Lastly, the growing awareness of environmental issues has changed customers' purchasing behavior, leading to a reevaluation and redefinition of product value.

How can we ensure the implementation of value analysis action?

In his thesis *Le pilotage par la valeur de la performance des organisations: cas des entreprises gérées par affaire*, Professor Michel Pendaries emphasized that implementing value analysis requires a structured seven-step process, namely: (1) defining the study's objectives; (2) obtaining information; (3) conducting functional and cost analysis; (4) fostering innovation and creativity; (5) studying and evaluating solutions; (6) making decisions and selecting solutions; and (7) choosing and implementing the solutions.

To successfully carry out a value analysis (V.A.), it is essential to first determine the subject of the study and conduct a detailed investigation to collect information on regulations, future directions, evolving standards, and other relevant factors. Subsequently, stakeholders should recognize and enumerate needs, covering functions and desired performance levels, prioritize them, and align the value of each attribute proportionally with its cost. Once the needs are determined, stakeholders from different disciplines collaborate to propose innovative solutions that translate customer requirements into technical specifications. However, customer validation is essential due to the increasing disparity between the value perceived by customers and the value attributed to the newly developed technology by the research and development team.

Presenting multiple solutions requires a detailed comparison of each option's benefits and drawbacks to determine the most advantageous one, evaluating elements ranging from development costs and investment amounts to profitability and potential social impacts. This process helps empower that decision-makers are fully informed of all essential aspects. Ultimately, the effectiveness of the chosen solution is demonstrated through its implementation and the ongoing monitoring of how well actual results align with initial projections.

Why is the Kaizen philosophy so important?

Customer value creation is one of the key principles that drive and govern the operation of the target costing method. Consequently, value is considered to be data that the company gathers from the market by means of rigorous research to determine individual preferences in terms of functionality. After determining the value of each function, managers set a cost ceiling to be adhered to. Even so, when costs exceed the defined standard, value analysis seeks to pinpoint potential solutions. When conducting a functional analysis of an **existing product**, both academics and practitioners unanimously agree on using the term '*value analysis.*' In contrast, if the functional analysis is applied to **new products**, the term adopted is '*value engineering.*' This is particularly relevant because target costing is not limited to value analysis; it also encompasses other methods, for example, activity-based costing and Kaizen costing. Furthermore, while value analysis is applied during the design phase to calculate the estimated cost

accurately, Kaizen costing focuses on the manufacturing phase to reduce costs at the operational level. (Meyssonnier, 2001; Feil et al., 2004; Hamood et al., 2011; Cooper & Slagmulder, 1997; Lorino, 1994; Tanaka, 1993)

Kaizen—what does it mean? Kaizen⁸ is a process of continuous improvement that involves two fundamental concepts: '*Kai*,' which means '*change*,' and '*Zen*,' which means '*better*' (Chen et al., 2000; Palmer, 2001). Kaizen originates from '*Gemba Kaizen*,' which is a synonym for '*continuous improvement*' and is considered essential for addressing fierce competition. Moreover, implementing the Kaizen philosophy requires involvement from numerous disciplines (Dean & Robinson, 1991; Malik et al., 2007). As noted by Imai (1996), Kaizen serves as an umbrella that covers a wide range of techniques, which consist of (1) Customer Orientation, (2) Six Sigma, (3) Total Productive Maintenance, (4) Just-In-Time, (5) Small Group Activities, (6) Automation, (7) Suggestion System, (8) Discipline, and (9) Poka-Yoke.

Central to Suzaki's (1987) argument is the idea that continuous improvement is a philosophy asserting there are no limits or endpoints to process enhancement. Teian (1992) further argued that Kaizen is more than just an improvement tool; it is a philosophy applicable to all areas requiring development and necessitates strong collaboration across different hierarchical levels, spanning senior management and workers (Imai, 1986). Many authors are showing increasing interest in the Kaizen philosophy, primarily because of its benefits, notably increased productivity (Deniels, 1996; Reid, 2006), enhanced quality (Deniels, 1996; Reid, 2006), reduced effort (Deniels, 1996; Reid, 2006), and lower waste, fewer breakdowns, and better timeline optimization (Awang & Ahmad, 2005). To assess the effectiveness of continuous improvement in manufacturing industries, it would be beneficial to review case studies that have addressed this topic. To this end, the following table 1 summarizes the key works found in the literature.

Table n°1: Case studies on the effectiveness of the Kaizen Philosophy

Authors	Publication Title	Purpose	Methodology	Results
Radharamanan et al. (1996)	Quality and productivity improvement in a custom-made furniture industry using Kaizen	How is the Kaizen philosophy used within a small-sized, custom-made furniture industry?	A qualitative study	The brainstorming process has highlighted several key issues, including the lack of a suitable methodology to guarantee quality, incompatibility of personal protective equipment, outdated machinery, disorganized workspaces, insufficient measuring instruments, inadequate training, poor lighting in certain areas, and subpar raw materials. In response to these challenges, a series of thoughtful solutions has been put forward. The overarching goal is to elevate the product by refining quality, lowering costs, and boosting productivity, all while exceeding customer expectations.
Sheridan (1997)	Kaizen Blitz	How does the application of Kaizen events in Allied Signal Inc.'s jet engine manufacturing industry resolve problems such as low production rates and large floor space requirements?	A descriptive study	The results show an 89% improvement in work in process (WIP), an 88.5% increase in productivity, and a reduction of over 2000 sq. ft. in floor space requirements, all achieved via the application of Kaizen events.

⁸ The emergence of Kaizen is linked to a specific context characterized by labor shortages, a reality recognized by the Japanese government. As a result, Japan sought to address this critical situation by collaborating with workers, relying on a contractual foundation that promotes lifelong employment, ensures job security, and fosters trust within the professional environment (Yannou, 2000). Kaizen was first introduced by Toyota, thanks to Imai's efforts to confront fierce global competition. Since then, it has become a widely adopted practice in Japanese companies, significantly contributing to their success (Ashmore, 2001).

<p>Erlandson et al. (1998)</p>	<p>Impact of a poka-yoke device on job performance of individuals with cognitive impairments</p>	<p>Could the application of the Kaizen philosophy, particularly poka-yoke techniques, generate job opportunities and improve the productivity of individuals with cognitive disabilities?</p>	<p>A quantitative study</p>	<p>The redesigned assembly fixture served as the poka-yoke intervention, aligning with its principles to boost productivity for everyone involved in the assembly process. Notably, workers in this study saw an 80% increase in productivity, while the average error rate decreased from 52% to around 1% after the process redesign. Furthermore, the workers saw enhanced morale, self-esteem, and a greater sense of pride in their work.</p>
<p>Adams et al. (1999)</p>	<p>Simulation as a tool for continuous process improvement</p>	<p>How can simulation be a powerful tool to support CI process improvement?</p>	<p>A qualitative study</p>	<p>Process simulation is a valuable tool that supports various steps in the continuous improvement (CI) process. To maximize its effectiveness, it is essential to develop a well-constructed simulation model. For new situations, starting with basic, simple models is recommended, as they provide a solid foundation. Additionally, involving management in interpreting the simulation results can lead to valuable insights and better decision-making. Furthermore, the animation features of the simulation offer a visual representation that enhances understanding of factory operations, providing meaningful perspectives into the overall workings of the system.</p>
<p>Bond (1999)</p>	<p>The role of performance measurement in continuous improvement</p>	<p>What are the particularities of the application of Kaizen and re-engineering programs in a leading international company specializing in the manufacture of surgical products?</p>	<p>A qualitative study</p>	<p>The research explores the four stages of the process life cycle, each characterized by distinct features. The study focuses on both Kaizen and radical process re-engineering programs within a leading international company. It examines key performance factors such as quality, delivery reliability, customer satisfaction, cost, safety, and morale, assessing them across these four stages. The results underscore that each stage has unique characteristics that should be considered when applying Kaizen and re-engineering techniques.</p>
<p>Chen et al. (2000)</p>	<p>A kaizen based approach for cellular manufacturing system design: a case study</p>	<p>How can the Kaizen approach be implemented in a small manufacturing design system?</p>	<p>A qualitative study</p>	<p>The new assembly process reduced cycle time by approximately 44%, from 62 seconds to 28 seconds. The proposed assembly area, requiring two cells and occupying 160 square feet, reduces the workspace by 37%. The 'make one, check one, pass one' method champions 100% quality inspection, minimizing scrap and rework by addressing issues immediately. Employee morale is improved through task rotation in the cellular design, leading to higher satisfaction, reduced boredom, and increased productivity and quality.</p>

<p>Lee (2000)</p>	<p>Customer service excellence through people motivation and Kaizen</p>	<p>What are the steps involved in implementing the Kaizen program at Nichols Foods, a manufacturer of food products, and how are they carried out?</p>	<p>A qualitative study</p>	<p>The results show a reduction in quality rejections, shorter changeover times, and improved manufacturing efficiency.</p>
<p>Lee et al. (2000)</p>	<p>Kaizen: an essential tool for inclusion in industrial technology curricula</p>	<p>How effective can the integration of the Kaizen approach be in industrial technology?</p>	<p>A qualitative study</p>	<p>Following the implementation of lean thinking, a reduction in building space utilization, material handling costs, and scrap rates is anticipated. The exercises outlined in this paper can be integrated into the current framework of manufacturing programs to empower graduates to acquire a comprehensive understanding of this crucial concept.</p>
<p>Ashmore (2001)</p>	<p>Kaizen - And the art of motorcycle manufacture</p>	<p>How can the Kaizen philosophy be effective in a context characterized by intense competition and a significant rise in costs?</p>	<p>A descriptive study</p>	<p>The implementation of this technique resulted in a sales increase of at least 69%, with profits growing by a factor of 54 within a fiscal year. In addition, the author examined the role of Six Sigma (SS) in waste reduction and the contribution of Just-In-Time (JIT) in fostering continuous improvement (CI).</p>
<p>Palmer (2001)</p>	<p>Inventory management Kaizen</p>	<p>How has BAE SYSTEMS implemented the Kaizen philosophy to achieve its objective of becoming 'Lean' by eliminating waste (Muda) across all areas of the business?</p>	<p>A qualitative study</p>	<p>The study results reveal notable enhancements in process efficiency after the Kaizen event. For one of the analyzed processes, the time required to complete the task initially ranged from 15.8 hours to 610 hours. Subsequent to the implementation of Kaizen improvements, this time was reduced to a range of 4.5 hours to 296 hours, demonstrating a significant reduction in process duration. The entire Kaizen event resulted in savings of well over 1 million dollars per year. This outcome reinforces the effectiveness of Kaizen in improving productivity and lowering costs.</p>
<p>Granja et al. (2005)</p>	<p>Target and Kaizen costing in construction</p>	<p>How can we develop a framework that combines the concepts of target costing and Kaizen costing, providing a foundation for a total cost management system in a construction company?</p>	<p>A qualitative study</p>	<p>The results of the research confirm that a combination of Kaizen activities, Kaizen costing, and target costing is a powerful approach for construction companies. This method helps improve product performance, reduce costs, and maximize value for the customer. By maintaining low prices while securing profitability, this strategy enables construction companies to effectively balance cost reduction with high-quality product delivery.</p>

<p>Dehghan et al. (2006)</p>	<p>Continuous improvement approach in the agriculture sector</p>	<p>How is the Kaizen project conducted by the National Productivity Improvement Program (NPIP) at the Chaharmahal-Bakhtiari Agriculture Organization?</p>	<p>A qualitative study</p>	<p>The results of the research demonstrate significant improvements after the implementation of Kaizen methodologies, particularly 5S and process improvement. Notably, there was an 11% reduction in the number of stations, an 11.7% decrease in unnecessary movement, and a 16% reduction in process time, all contributing to a more efficient workflow. As well, the process length was reduced by 34.2%, and transportation costs were reduced by 53%. These changes not only streamlined operations but also led to increased satisfaction levels among both domestic and foreign customers, due to shorter work processes and reduced financial expenses.</p>
<p>Kikuchi et al. (2007)</p>	<p>Method of overall consumables effectiveness</p>	<p>How can the Overall Equipment Efficiency (OEE) method be applied to reduce costs by using the Kaizen technique in the semiconductor industry?</p>	<p>A qualitative study</p>	<p>The results of the research indicate that the application of the Overall Consumable Effectiveness (OCE) technique to reduce the consumption of gases and chemicals across 12 items led to a 7% annual cost reduction. Also, the research affirms that this experience increased awareness of the potential to apply the Kaizen process to other areas, indicating that the method can be used more broadly to improve efficiency and reduce costs.</p>
<p>Chandrasekaran et al. (2008)</p>	<p>Quality improvement in automobile assembly production line by using Kaizen</p>	<p>How can the Kaizen method be applied to solve the 'part mismatch problem' within the automobile assembly production line?</p>	<p>A descriptive study</p>	<p>The results of the study demonstrate the effectiveness of the step-by-step Kaizen procedure in addressing production issues. Using data collection, root cause analysis, selecting the best solution, implementing corrective actions, and documenting improvements, several significant benefits were observed. The major functional problem was successfully eliminated, leading to a reduction in quality rejections. In the same vein, the need for rework was eliminated, resulting in a smoother production flow. These improvements contributed to considerable cost savings, underscoring the positive impact of the Kaizen technique in enhancing efficiency and reducing waste in the production line.</p>

Source: The information presented is attributed to authors who based their work on information from scientific publications.

What role do values play in enhancing target costing effectiveness?

Target costing remains a philosophy in itself, reflecting the values of Japanese society. At first glance, the simplistic presentation of the method can give rise to the misleading assumption that its implementation will inevitably produce the desired results. Still, in reality, its implementation is also conditioned by purely managerial tools. The example cited by Taylor (1997) illustrates this truth well: 'For years Toyota in the United States has been offering seminars open to the public, including competitors. In these seminars, the Toyota Production System (TPS) is introduced in detail. Toyota's approach is three-fold: techniques, systems and philosophy. Even though Toyota's techniques and systems are explained in great detail and can be copied by competitors, none of them have been able to reach the same degree of efficiency as Toyota.'

The literature highlights that the *managerial practices* associated with target costing are numerous, specifically characterized by *inter-functionality, leadership, a unified language, a shift from an individualistic to a collectivist culture, a sense of responsibility and commitment, mutual trust, participation, cooperation, flexibility, market orientation, Keiretsu, network and informational capacity, cross-functional management and organization*, and, ultimately, *proactive management* (Benslimane, 2023).

6. The couple cost-value from a target costing perspective

Nonetheless, *is target costing capable of addressing the issue of the cost-value relationship? The principle of attribute independence*, on which the target costing method is based, lacks scientific support, particularly as noted by Horvath (1995). Under this principle, during the development of a new product, the company seeks to identify all the functions desired by the customer and prioritize them based on their importance. Nevertheless, if the final product fails to fulfill one of these functions, the resulting risk is reflected in a loss of its value, without affecting the value of the other functions.

In the opinion of several authors (Horvath, 1995; Malleret, 2009; Naumann & Jackson, 1999), the principle of attribute independence is strongly contested for diverse reasons. On one hand, a product may contain a fundamental attribute, and its absence can negatively impact the value of other attributes. On the other hand, a product may sometimes include attributes that vary in a contradictory manner; in other words, improving one attribute may come at the expense of another.

Moreover, countless products cannot function well if any of their essential attributes are eliminated. Recently, a distinction has been made between basic attributes and those that fulfill the consumer's deeper needs. While the absence of a basic attribute directly leads to customer dissatisfaction, the presence of a secondary attribute holds no value without the basic one.

Other scholars (Lorino, 1994; Meyssonier, 2001; Mévellec, 2005) support these provisions. In accordance with Lorino's (1994) perspective, product functions are divided into two categories: required and value-adding. Required functions focus on technical performance, while value-adding functions relate to satisfying more abstract needs and addressing prestige needs. Meyssonier (2001) radically rejects the principle of attribute independence, emphasizing its detrimental effects on the product's overall identity. Additionally, Mévellec (2005) takes an extreme position, arguing that *'it is difficult to claim that the overall value is merely the sum of the individual values of these functionalities.'*

The second principle of target costing, referred to as *'The fair division of the cost/value pair,'* is increasingly facing significant resistance. As discussed by Horvath (1995) and Malleret (2011), the target costing method strives to assign to each component of the product a share of the costs corresponding to its value. Meyssonier's article (2001) challenges these statements by presenting the ensuing arguments: *'We don't see on what basis the two should coincide. It's easy to imagine potential pitfalls: applying such a principle could, for instance, lead to unnecessary waste in a product attribute simply to maintain a balance between cost and value, even when a lower cost might be achievable. Indeed, nothing prevents a high-value function from being produced at a very low cost, or an essential function with limited value from being very expensive to produce.'*

It is certain that the list of criticisms directed at the target costing method is not limited to these two principles and extends to other factors. As stated by Kato et al. (1995), the obsession with costs leads Japanese companies to make irreversible errors, such as *exceeding the allotted time for new product development, increased pressure, stress, conflicts within the company*, and a *decline in the product's attractiveness*. Ultimately, the target costing method has two major drawbacks: **it fails to account for all costs incurred during the new product development process and neglects the time dimension.**

7. Target costing responses to value co-creation

The analysis of the evolution of management control tools reveals that whenever the recipients of value or the mechanisms for its creation change—whether gradually or significantly—the management control instruments are directly impacted and undergo profound transformation. This dynamic stems from the contextual needs unique to each era, which vary particularly based on the most influential stakeholders. Whenever a stakeholder became the focal point for researchers and practitioners due to market changes, a new instrument would emerge, designed to measure the creation of value for that stakeholder. Indeed, the instruments that emerged with the increasing influence of shareholders, managers, customers, and all stakeholders—both internal and external—perfectly illustrate this dynamic.

By positioning target costing within the evolving framework of management accounting, as presented by scholars, it becomes clear that this instrument lies at the heart of the fourth phase—the 1980s. During this period, particular attention was given to the concept of Lean Enterprise, dedicated to creating value for customers through process optimization and the elimination of waste. Thus, target costing contributes to the creation of value for the customer by fostering innovation and cost reduction. A critical analysis of the competitiveness factors of Japanese companies reveals that they have consistently succeeded in developing innovative products that are accessible to a broad audience at affordable prices. However, it is essential to emphasize that, despite this approach focusing on innovation and cost reduction, creating value for customers presents a significant drawback: the relentless pursuit of optimization and cost reduction ultimately leads to a substantial decrease in companies' profit margins.

In this dynamic, a true paradigm shift has occurred: competitiveness now primarily relies on customer experience. The customer is no longer seen as a mere receiver but as a full-fledged actor, actively and interactively engaged throughout the process

of designing a new product. This approach thus contradicts the classical, linear model of value creation, in which collaboration—often passive and implicit—was limited to just a few isolated stages of the innovation process (Benslimane et al., 2024). The question that now clearly arises is the relevance of the target costing method within the framework of value co-creation. *Does the shift in paradigm and value generation mechanisms imply the obsolescence of certain tools, necessitating the use of new instruments, or is there a compromise that ensures the sustainability of traditional tools?*

CONCLUSION

In view of the points raised throughout this publication, it is evident that the target costing method is essential for companies engaged in an innovation strategy. The primary advantage of this method lies in its operating mechanism, which serves as a valuable source of information. This is largely attributed to the fruitful collaboration between marketers and research and development engineers, aimed at significantly reducing technological and market uncertainties. As a result, the key success factors of an innovation project are positively influenced. Besides these features, this powerful tool can play critical roles, which are explained as follows: Firstly, the significant reduction in costs can mainly be attributed to the considerable effort invested in the early stages of an innovative project. Secondly, the decrease in costs and the optimization of completion time result from intense interactions between companies and target customers, with a focus on the customers' preferences and needs from the outset. Thirdly, the notable improvement in quality stems from the application of the continuous improvement philosophy during the execution phase.

However, it is important to note that the target costing method is a comprehensive approach that integrates both, technical tools, for instance, value analysis, value engineering, Kaizen philosophy, and activity-based costing, as well as managerial tools across the various stages of the innovation process. Despite the expected advantages of using this tool, it presents several disadvantages, such as the independence of attributes and the alignment of costs with value. Ultimately, the emergence of the new value creation paradigm, widely popularized under the term 'value co-creation,' has posed challenges for management control tools, as the value generation mechanism has undergone a radical shift.

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