# Investigation of Difference between Target Costing Setting (TCS) Users and Non-Target Costing Setting (Non-TCS) Users in Iranian Companies

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**ABSTRACT:** The current research investigates Target Costing as a strategic cost management tool in Iranian companies' environment. A questionnaire is distributed to Target Costing Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users, in order to determine the differences between them in relation to the perceived advantages of Target Costing organizational complexity, satisfaction with costing, and performance. The influence of top management support and whether a particular strategy is perceived is also examined in relation to distributed Target Costing Setting (TCS) users. The results indicate that Target Costing Setting (TCS) users have a more optimistic perception of advantages realized from Target Costing than Non-Target Costing Setting (Non-TCS) users. No particular strategy is employed by Target Costing Setting (TCS) users and it also apparent that not all companies consider Target Costing to be tied to their competitive strategy. It is also found that not all elements of complexity necessarily precede Target Costing adoption. A significant difference in satisfaction with costing is indicated between Target Costing Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users who are considering or have considered and rejected Target Costing Similarly, a statistically significant difference is found between the performance of Target Costing Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users when it is indicated that the benefits of Target Costing outweighed the costs. The results suggest that Target Costing is beneficial in the Iranian companies' environment.

**KEY WORDS:** Target Costing, Target Costing Setting (TCS) Users, Non Target Costing Setting (Non-TCS) Users, Iranian Companies.

## 1. INTRODUCTION

Target Costing, as a backwards approach for determining costs (Feil et al., 2004), is not solely about a cost management and also a system of profit planning that ensures that new products and services meet market determined prices and financial (Ansari et al., 1995). described Target Costing as an organizational process rather than a technique and since 1970s, it was the Japanese auto company, particularly; Toyota that combined the elements of Target Costing and turned it to a holistic system of profit and cost management and many of the Japanese assembly industries today use Target Costing extensively (Ansari et al.,2007). Target Costing is based on the idea that a product's quality, functionality, and cost are largely determined during the design stage of the product lifecycle (Ax et al., 2008). And Target Costing is a widely used technique for cost management during product development (Filomena et al.,2009).(Cooper et al., 1996), highlighted the fact that 80% of product costs are estimated to occur at the design phase which exhibited that major and significant cost reduction opportunities

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are available only at this stage. However, the organization managers often underestimate the power of this strategic weapon and they think it is a process that is related to accounting and finance staff (Ansari et al., 2007).Target Costing is a market-driven approach and needs a wide organizational commitment, Extensive market research, focus on customer demands, design characteristics of the products, cross functional teams, supplier integration and many other factors affect the success of Target Costing. Although the definition of the process connotes a practical approach, the implementation of the process is not that simple (Horsch J C, 1998).

## 2. PROBLEM STATEMENT

Toyota motor company in Japan first invented the Target Costing system (Tanaka, 1993). It has since been implemented in most of the Japanese industrial company (Ansari et al., 1997). Other car companying companies throughout the world have also implemented Target Costing to remain competitive with Japanese company like Toyota. For example, Chrysler, Ford, Mercedes-Benz and Intel are using Target Costing (Blocher Chen, 1999), although just a few Iranian companies may have started to use or plan to use Target Costing and there are few research findings to support this. Therefore, an investigation into Target Costing in Iran is urgently needed.

## 3. SCOPE OF THE STUDY

The current research investigates the use of Target Costing in Iran. In particular, the purpose is to identify differences in organizational characteristics between two groups of companies with more than 50 employees using Target Costing Setting (TCS) and not using Target Costing Setting (Non-TCS).Furthermore, differences in performance between Target Costing Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users are investigated. It is hoped that such researches would be able to shed light on Target Costing in Iranian industry's environment.

## 4. LITERATURE REVIEW

### 4.1. THE ORIGIN OF TARGET COSTING

A retrograde approach for determining product costs, which is one of the most important features of Target Costing, can be found as early as the beginning of the last century at Ford in the United States and in the development of the Volkswagen Beetle in Germany in the 1930s. At Volkswagen, in order to meet the price goal of DM 990, alternative technical solutions were weighed on the basis of cost considerations (Rösler F, 1996). Yet a fully fledged Target Costing approach began during the period of scarce resources after World War II. During this time, Americans created a concept of maximizing desirable product attributes while at the same time minimizing product costs (Leahy T, 1998). The technique became known as "Value Engineering" and was subsequently adopted by Japanese companies in order to withstand stiff competition within Japan. In the 1960s, value engineering was combined with the idea of influencing and reducing product costs as early as possible during the planning and development stages of a product (Buggert W et al., 1995).The first use of value engineering in Japan known as "Genka Kikaku" occurred at Toyota in 1963, though it wasn't mentioned in Japanese literature until 1978 (Tani et al., 1996). Later "Genka Kikaku" was translated into "Target Costing," the term now used throughout the world. (Rösler, 1996), did etymological research to clarify the derivation of the term "Target Costing" from Japanese language, which is described in **Figure 1**. Even though (Kato Y, 1993), Criticizes the use of "Target Costing" as a translation of "Genka Kikaku," the term has been generally

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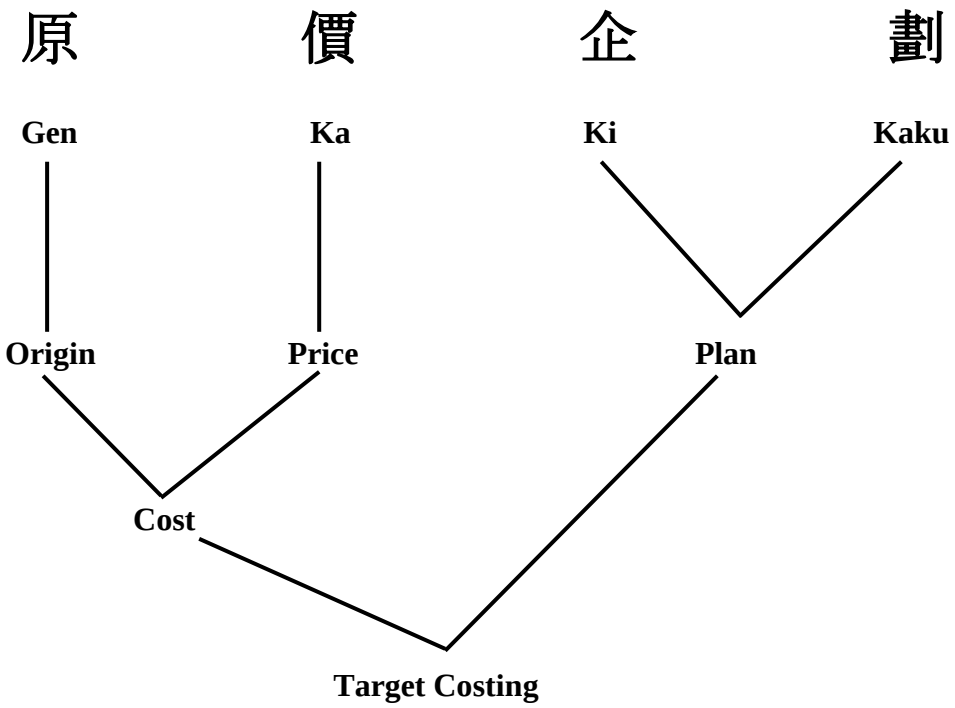
accepted in the Western world. At the annual meeting of the Japan Cost Society in 1995, the official name was made "Target Cost Management" on the grounds that "Target Costing" was too vague and did not convey the true meaning of "Genka Kikaku."

**Figure 1**: The Origin of Target Costing




Source: (Rösler F, 1996), Target Costing für die Automobil industrie, (Wiesbaden, 1996), (English translation has been added by the authors.)

## 4.2. DEFINITION OF TARGET COSTING

Different writers have described TC in different ways as Follows:
Cost reduction activity at the product planning stage involves two basic processes: extracting the target cost from the profit goal and evaluating the design activity with the intention of achieving the target cost. (Makido T, 1989). Target Costing can be defined as a cost management tool for reducing the overall cost of a product over its entire life cycle with the help of the production, engineering, R&D, marketing and accounting departments (Sakurai M, 1989). Target Costing is the system to support the cost reduction process in the developing and designing phase of an entirely new model, a full model change or a minor model change. (Monden Y et al., 1991).Target Costing is built on a comprehensive set of cost planning, cost management and cost control instruments which are aimed primarily at the early stages of product and process design in order to influence product cost structures resulting from market driven requirements. The Target Costing process requires the cost orientated coordination of all product related functions. (Horvath P, 1993), Target Costing is a set of management methods and tools to drive the cost and activity goals in design and

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planning for new products, to supply a basis for control in the subsequent operations phase and to ensure that those products reach given life cycle profitability targets. (Cam I, 1993).Effort at the planning and development stages to attain a cost target set by management is called Target Costing, which is carried out mainly by the design divisions. (Tanaka T, 1993). Target Costing may be defined as the process established to set and support the attainment of cost levels, usually, but not exclusively, expressed as product costs, which will contribute effectively to the achievement of an organization's planned financial performance (Yoshikawa et al.,1993).Target Costing is a strategic management tool that seeks to reduce a product's cost over its lifetime. It presumes: interaction between cost accounting and the rest of the company, a well executed long range profit planning, and a commitment to continuous cost reduction. (Brausch J, 1994).Target Costing is concerned with simultaneously achieving a Target Cost along with planning, development and detailed design of new products by using methods such as value engineering. (Tani et al., 1994).Target Costing is a market-driven system of cost reduction, focused on managing costs at the development and design stages of a product. (Lee J Y et al., 1994). Target Costing is an effective tool for reducing material costs such as materials and parts, but it can also be used for reducing overhead. (Sakurai M, 1995) .Target Costing is a systematic process for reducing product costs that begins in the product planning stage. (Fisher J, 1995). Target Costing is a structured approach to determine the cost at which proposed product with specified functionality and quality must be produced in order to generate the desired level of profitability at the product's anticipated sales price. (Cooper R, 1995). The Target Costing process is a system of profit planning and cost management that is price led, customer focused, design centered, and cross-functional. Target Costing initiates cost management at the earliest stages of product development and apply it throughout the product life cycle by actively involving the entire value chain. (Ansari S L et al., 1997). A technique to strategically manage a companies' future profits'. The authors have given a formula to determine target cost as:

Allowable Cost = Target Selling Price - Target Profit Margin (Cooper R et al., 1997).

### 4.3. NECESSITY OF IMPLEMENTING TARGET COSTING

In highly competitive environments, innovation (Gagne M et al., 1995), and competing in terms of quality, cost and functionality (Cooper R, 1996), are essential to a company's survival. Target Costing assists in making the trade-offs between these elements by ensuring that only products that meet customer requirements and the desired profitability are developed (Cooper R et al., 1996), Getting a product to the market first no longer has the same profitable benefits that existed in the past, as competitors' imitations rapidly follow a new product's release (Cooper R et al., 1996). Target Costing helps launch products that improve on previous generations by having reduced prices or improved quality and functionality (Cooper R et al.,1996), Developers return to the market to assess whether changes in design have affected the price customers are willing to pay (Cooper R et al.,1999). (Tani et al., 1994), find cost reduction, satisfying the customer, quality, and getting products to market in a timely fashion represent the objectives of Target Cost Management in order of importance. (Dekker H et al., 2003), findings agree that cost reduction is most important, while a slight, though not statistically significant, difference exists in the rankings of the other objectives. They also examined perceived benefits and conclude cost reduction is more beneficial

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than the other objectives while time-to-market is perceived as more beneficial than quality. (Adler et al., 2000), find that product profitability improvement and cost reduction are equally the most important benefits to the small number of users of Target Costing. Product planning and development teams comprising people from various functions within a company are a key component of Target costing (Tani et al., 1994), as they can bring together different ideas for improvements (Tani T, 1995).Target Costing differs from the "traditional baton relay style of product development" (Tani T, 1995), where there is a clear succession from one department to the next during product development. Simultaneous engineering describes how various departments are involved in any one stage of development (Tani T, 1995), Personnel from accounting, marketing, purchasing, planning, development, design, production and even suppliers are involved to different extents in Target Costing teams (Tani et al., 1994; Dekker et al., 2003). (Dekker et al., 2003), find product development personnel play a greater role than product design personnel, in contrast to (Tani et al.,1994),findings in Japanese companies. It can be beneficial involving suppliers in Target Costing. Pressures stemming from the market can be passed on to suppliers to encourage their creativity and cost control (Cooper and Slagmulder, 1999; Dyer J ,1996), Key elements of successfully involving suppliers appear to be building mutual trust, responding to their ideas, and rewarding suppliers for any resulting improvements (Dyer et al., 2000). Target Costing can become more effective when used within the supply chain, as it increases the possibilities for design changes (Cooper R et al., 2003). It can also form an important part of inter-organizational controls, where companies attempt to manage and control their own and their supplier's activities (Mouritsen et al., 2001). Actual target costs set for a product are the result of an adjustment from the allowable costs, i.e. selling price less desired profit (Tani et al., 1994). For Japanese company, Target Costing is "no mere goal in the Western sense; it is a strong commitment by managers to do everything in their power to make the organization reach its cost or profit targets" (Kato et al., 1995). Although (Cooper and Slagmulder, 1999), claim that the cardinal rule for Japanese company is that the "target cost must never be exceeded", they note that temporary violations of the cardinal rule may be appropriate in order to release a product to the market on time and adjustments may need to be made for any effects on sales of other existing or future products. Survey research carried out by (Tani et al., 1994). Reveals considerable adjustments are made to allowable costs for forecasted actual costs. However the reasons behind such adjustments are not discussed. Much of the literature on Target Costing only recognizes implementing it in the pre-production stages of a product lifecycle (Kato, 1993; Tani et al., 1994; Cooper, 1996; Dekker and Smidt, 2003). For example (Tani., et al 1994), survey of Japanese company found all Target Costing practices were implemented prior to production. The "rule of thumb" stating that 80 per cent of product costs are fixed by the production stage (Kato Y, 1993), supports the proposed benefits of searching for cost reduction opportunities at this stage. (Shank Jet al., 1999), argue strongly that Target Costing can be applied even once a product is being produced. This view also shared by (Ellra L M, 2000). Expands prior thinking on the Target Costing concept, opening opportunities for greater use of the practice (Shank et al .,1999), point out this is not to be confused with kaizen costing, which also focuses on cost reduction during production; kaizen costing is not concerned with product design, but rather with the design of production processes (Cooper R,1996), Examining the link between Target Costing and intended

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strategy (cost leadership or differentiation) may help companies decide whether to implement the practice.(Hibbets et al .,2003), provide a recent example of linking Target Costing with a differentiation strategy. However, (Cooper R, 1996), proposes Target Costing would be beneficial for company's adopting a confrontational strategy, because both are concerned with producing low cost products designed with the functionality and quality that customers demand. (Dekker H et al., 2003), find a significant positive correlation of Target Costing with the intensity of competition and an unpredictable environment. (Hibbets et al.,2003), examine the competitive environment in terms of five forces: rivalry of sellers, threat of new entrants, threat of substitutes, power of suppliers and buying power of customers. (Hibbets et al., 2003), concludes that rivalry among competitors is the driving force behind the competitive environment of Target Costing companies. (Kato et al., 1995), examine some of the problems with Target Costing. They point out that products can take longer to get to the market, resulting in a failure to achieve targeted sales volumes. Also pressure on employees to meet goals may cause them to burnout, while overemphasis on market needs may result in too many products being developed, reducing profitability. It is also difficult to estimate future costs, prices and sales variables (Fisher, 1995; Bayou M et al., 1998; Nicolini et al., 2000), which may cause delays to market (Bayou and Reinstein, 1998).

## 4.4. PERCEIVED ADVANTAGES

companies which have not adopted Target Costing do not perceive that advantages can be realized from Target Costing adoption due to a lack of understanding of the system .Companies such as Toyota, Nissan and Bajaj, TATA (NANO) which have adopted Target Costing are more likely to have explored the costs and benefits before the adoption decision, or may believe that these benefits have been experienced. Conversely, Companies which still using traditional costing systems may have concluded that these benefits do not exist, and therefore there is no advantage to adoption. Consequently, there is an obvious difference between the perceived advantages of Target Costing by Non-Target Costing Setting and Target Costing Setting users of this strategic cost management tool.

## 4.5. ORGANIZATIONAL CHARACTERISTICS

### 4.5.1. RESOURCES

The availability of sufficient resources in organization is the most important factor for adopting the Target Costing Setting .Resources includes 1) adequate funding (costs of adopting Target Costing, and further maintenance costs after adoption), 2) time, and 3) availability of employees necessary for perceiving and implementing an effective Target Costing and 4) commitment and support of top management.

### 4.5.2. STRATEGY

Many academic journals have explored the strategic focus employed by companies to achieve a competitive advantage over competitors (Gartman, 2005). Modern strategic cost management tools such as Target Costing are adopted in order to achieve employed strategies, especially in situations where a relative advantage may be obtained. Organizations competing through innovation and product and marketing development are more inclined to be open to the adoption of new techniques to improve processes and information (Gosselin, 1997). Companies employing a differentiation oriented strategy would be likely to adopt target costing strategy. Companies which follow a lower price, or cost leadership strategy will also benefit from a Target Costing

environment, due to the ability to enhance cost effectiveness in relation to supplier relationships and decision making. Basically cost based strategies are likely to receive benefits from adoption the Target Costing as a result of the cost management abilities that are obvious. However, (Cinquini et al., 1999), also suggest that companies following differentiation strategies will obtain an enhanced understanding of profit and differentiation costs.

#### 4.5.3. ORGANIZATIONAL COMPLEXITY

Companies with 'higher complexity' have a greater need for more accurate cost allocation that is harder to achieve with traditional costing systems. For example, to allocate overhead costs to an individual product or service, a complex allocation system is not required. Consequently, small companies do not believe to have a greater need for more accurate cost allocation systems such as Target Costing. The complexity and Target Costing relationship has been attributed to size of companies where it is believed that small companies generally have less diversity in products and services and hence do not experience the same allocation issues consequently, it is advocated that these companies do not require modern costing techniques.

#### 4.5.4. SIZE

It is generally accepted that companies such as Toyota, Nissan, adopt Target Costing as they are more likely to possess a combination of the factors such as resources, support and company's complexity .However, in relation to many of these factor, the reality and necessity of these associations are contradicted by Target Costing adoption in small companies. Despite, Target Costing is conducted in larger companies, companies are believed to be just as able to adopt and experience benefits from adopting Target Costing .larger companies are more likely to experience barriers to Target Costing than smaller companies.

#### 4.5.5. SATISFACTION

Dissatisfaction with the current costing system is another factor influencing adoption of Target Costing; (Swenson D, 1995), aimed to determine whether companies experienced an increase in satisfaction when changing from traditional costing to modern strategic costing technique. The results indicated that satisfaction increased in at least one of the variables explored. This suggests that after adopting new costing method, the satisfaction with costing will be higher than companies which have yet to (Swenson D, 1995).However, an issue that may arises, is the possibility that satisfaction is negatively associated with Target Costing adoption. If satisfaction is high with the current costing system, few incentives will be apparent to launch adoption.

## 5. RESEARCH METHODOLOGY

### 5.1. HYPOTHESIS

Hypothesis 1 (H1): the Target Cost Setting (TCS) users will associate higher perceived benefits with Target Costing than Non-Target Costing Setting (Non-TCS) users.

Hypothesis 2 (H2): the target cost setting (TCS) users will have greater levels of complexity than Non-Target Costing Setting (Non-TCS) users.

Hypothesis 3 (H3): the Target Cost Setting (TCS) users will report higher levels of satisfaction than Non-Target Costing Setting (Non-TCS) users.

Hypothesis 4 (H4): Perceived advantages, complexity and satisfaction will influence on the Target Cost Setting (TCS) adoption

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Hypothesis 5 (H5): the Target Cost Setting (TCS) users will not employ a particular strategy.

Hypothesis 6 (H6): The support of top management will be higher than other functions during the design and implementation of the Target Cost Setting (TCS).

Hypothesis 7 (H7): the target cost setting (TCS) users will have greater levels of performance than Non-Target Costing Setting (Non-TCS) users

### 5.2. RESEARCH DESIGN

The questionnaire method was selected for this research in order to test the hypotheses. Use of a questionnaire allows distribution to a wider number of companies, enabling a more indicative view of the Target Costing Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users in Iranian companies' environment.

### 5.3. SURVEY INSTRUMENT

The survey instrument consisted of four back to back A4 pages, separated into four sections.

### 5.4. SAMPLE SELECTION

Due to the nature of this research, and the desire to determine differences between Target Costing Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users in Iranian companies , the 130 sample was randomly selected from companies of all industries in Iran which were included in the General Portal of Iranian Company http://www.coo.ir/ .

### 5.5.QUESTIONNAIRE DISTRIBUTION

All of the companies were contacted by telephone first, in order to identify an employee with the appropriate knowledge and ability to complete the survey, and then the questionnaire was distributed by mail, personally addressed to the organizational member who had given verbal commitment on the telephone to participate in the survey.

### 5.6. PARTICIPANT SUBJECTS

The majority of the responses were completed by management accountants, financial controllers and managers. Ages of respondents ranged from under 30 to above 50 years old, with the largest proportion of respondents falling between 30-40 years old. Average work experience was 5 years in the company in total, and 3 years in the current position.

### 5.7. ANALYSIS OF RESPONSE:

Out of the 52 usable responses, 23 companies were identified as currently using Target Costing while 29 were not using.

## 6. HYPOTHESIS TESTING

SPSS Statistics 17.0 was used for conducting the statistical analyses. This program is believed to be the "easiest to use for the most widely used statistical techniques" Harvard-MIT. (N.D.).

### 6.1. TESTING HYPOTHESIS (1)

The Mann-Whitney Wilcoxon Test for the difference between two groups was used to determine whether Target Cost Setting (TCS) users illustrated a greater agreement with statements regarding the realization of advantages from Target Cost Setting (TCS) adoption. This test uses ranks of the cases, and subsequent summations of the rank orders, to determine whether a difference between two groups is obvious. The mean ranks presented in **Table 1** indicate that, as predicted, the agreement is higher for Target Cost Setting (TCS) users than Non-Target Costing Setting (Non-TCS).

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**Table 1**: Ranks of perceived advantages for Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users

| | Question 1 | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| More Accurate Profitability Analysis | Non –TCS | 29 | 23.48 | 681.00 |
| | TCS | 23 | 30.30 | 697.00 |
| | Total | 52 | | |
| Insight Into Cost Causation | Non –TCS | 29 | 24.57 | 712.50 |
| | TCS | 23 | 28.93 | 665.50 |
| | Total | 52 | | |
| Better Cost Control And Management | Non –TCS | 29 | 22.29 | 646.50 |
| | TCS | 23 | 31.80 | 731.50 |
| | Total | 52 | | |
| Perceiving Of Cost Reduction Opportunities | Non –TCS | 29 | 23.60 | 684.50 |
| | TCS | 23 | 30.15 | 693.50 |
| | Total | 52 | | |
| Decision Making | Non –TCS | 29 | 22.88 | 663.50 |
| | TCS | 23 | 31.07 | 714.50 |
| | Total | 52 | | |
| Information For Pricing | Non –TCS | 29 | 24.57 | 712.50 |
| | TCS | 23 | 28.93 | 665.50 |
| | Total | 52 | | |

**Table 2** illustrates that the difference between the two groups is significant at the 5% level for the agreement that Target Cost Setting (TCS) gives more accurate profitability analysis, provides better finding out for cost reduction opportunities, and improves managerial decision making. The results also indicate that the difference between Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) user is significant at the 1% level for the provision of better cost control and cost management. Although the tests suggest that the agreement that insight into cost causation and information for product costing and pricing between the two groups is not significantly different, these results only just fall outside the significance test boundaries of10%.

**Table 2**: Perceived advantages difference between Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) user [a]

| | Profitability Analysis | Cost Causation | Cost Control and Management | Cost Reduction | Decision Making | Information for costing and pricing |
|---|---|---|---|---|---|---|
| | 246.000 | 277.500 | 211.500 | 249.500 | 228.500 | 277.500 |
| Mann-Whitney U<br>Wilcoxon W | 681.000 | 712.500 | 646.500 | 684.500 | 663.500 | 712.500 |
| Z<br>Asymp. Sig. (1-tailed) | -1.908 | -1.205 | -2.516 | -1.779 | -2.229 | -1.243 |
| | .028** | .114 | .006*** | .0375** | .013** | .107 |

a Grouping variable: Question 1
*significant at the 10% level
**significant at the 5%level
***significant at the 1% level

Overall, the findings support the hypothesis that the perceived advantages of Target Cost are higher for Target Cost Setting (TCS) users than Non-Target

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Costing Setting (Non-TCS). When exploring the responses in greater detail, it is apparent that in total, respondents rated the highest average level of agreement with the statement that Target Costing provides insight into cost causation (see **Table 3** below).

**Table 3:** Perceived advantages ranked by mean: Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) user

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Cost Causation | 52 | 2 | 5 | 4.02 | .700 |
| Information for costing and pricing | 52 | 2 | 5 | 3.98 | .671 |
| Profitability Analysis | 52 | 2 | 5 | 3.94 | .725 |
| Cost Reduction | 52 | 2 | 5 | 3.88 | .704 |
| Decision Making | 52 | 1 | 5 | 3.79 | .750 |
| Cost Control and Management | 52 | 2 | 5 | 3.63 | .841 |
| Valid N (Listwise) | 52 | | | | |

When separated into their respective groups, Non-Target Costing Setting (Non-TCS) users had the highest average level of agreement with the cost causation insight advantage, while Target Cost Setting (TCS) users rated both insight into cost causation and the ability of Target Costing to provide more accurate profitability analysis as the most beneficial from an Target Cost Setting (TCS) adoption (please see **Tables 4** and **Table 5**.

**Table 4**: Perceived advantages ranked by mean: Non-Target Costing Setting (Non-TCS) users

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Cost Causation | 29 | 2 | 5 | 3.90 | .817 |
| Information for costing and pricing | 29 | 2 | 5 | 3.86 | .789 |
| Profitability Analysis | 29 | 2 | 5 | 3.76 | .830 |
| Cost Reduction | 29 | 2 | 5 | 3.72 | .797 |
| Decision Making | 29 | 1 | 5 | 3.59 | .867 |
| Cost Control and Management | 29 | 2 | 5 | 3.38 | .903 |

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**Table 5**: Perceived advantages ranked by mean: Target Cost Setting (TCS) users

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Profitability Analysis | 23 | 3 | 5 | 4.17 | .491 |
| Cost Causation<br>Information for pricing | 23 | 3 | 5 | 4.17 | .491 |
| Cost Reduction<br>Decision Making | 23 | 3 | 5 | 4.13 | .458 |
| Cost Control and Management | 23 | 3 | 5 | 4.09 | .515 |
| Valid N (Listwise) | 23 | 3 | 5 | 4.04 | .475 |
| | 23 | 2 | 5 | 3.96 | .638 |

A visual analysis of the means illustrated in **Tables 4** and **Table 5** above indicates that there could potentially be a greater difference between the highest and lowest ranked advantages for Non-Target Costing Setting (Non-TCS) users than Target Cost Setting (TCS) users. A repeated measures Wilcoxon Signed Ranks Test is performed to determine whether a difference is apparent. The results of this test presented in **Tables 6** and **Tables 7** below illustrate that there is a statistical difference between the highest and lowest perceived advantage of both groups.

**Table 6**: Difference between perceived advantages for Non-Target Costing Setting (Non-TCS) users

| | Information for pricing - Cost Causation | Cost Causation - Profitability Analysis | Cost Reduction - Cost Causation | Decision Making - Cost Causation | Cost Control and Management - Cost Causation |
|---|---|---|---|---|---|
| Z | -.378[a] | .000[b] | -.707[a] | -.832[a] | -1.387[a] |
| Asymp. Sig. (1-tailed) | .3525 | .500 | .240 | .2025 | .083* |

a Based on positive ranks.
b The sum of negative ranks equals the sum of positive ranks.
* Significant at the 10% level

**Table 7**: Difference between perceived advantages for Target Cost Setting (TCS) users

| | Cost Causation - Profitability Analysis | Information for pricing - Profitability Analysis | Cost Reduction - Profitability Analysis | Decision Making - Profitability Analysis | Cost Control and Management - Profitability Analysis |
|---|---|---|---|---|---|
| Z | -1.027[a] | -.791[a] | -.250[b] | -.994[b] | -2.021[b] |
| Asymp. Sig. (1-tailed) | .1525 | .2145 | .4015 | .16 | .0215** |

a Based on negative ranks.
b Based on positive ranks.
* Significant at the 10% level
**Significant at the 5% level

Further analyses were conducted in order to perceived more about the Non-Target Costing Setting (Non-TCS) users and their perceptions of advantages associated with Target Costing. Non-Target Costing Setting (Non-TCS) users were separated into their respective positions on Target Costing ,whether they were

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considering, had considered and rejected, or had not considered the system. Initial descriptive analyses were then conducted. The results indicate that company considering Target Costing adoption all agree or strongly agree that all advantages can be realized with Target Costing adoption. Companies not considering Target Costing or those who had considered and rejected its adoption had much lower agreement's, as indicated by ranges and means. Further Mann-Whitney Wilcoxon Tests were also performed to determine the difference in perceptions between Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users when separated into these categories .The results indicate that Target Cost Setting (TCS) users and those considering Target Costing do not have significantly different perceptions regarding advantages resulting from Target Costing .Conversely, many of the differences in perceived advantages for Target Cost Setting (TCS) users and those who have considered and rejected or not considered Target Costing were significantly different.

### 6.2. TESTING HYPOTHESIS ( 2)

The Mann-Whitney Wilcoxon Test was applied to determine whether there the complexity of Target Cost Setting (TCS) users is higher than Non-Target Costing Setting (Non-TCS) users .The results of this test illustrated in **Table8** and **Table 9** below suggest that there are differences between the two groups in relation to some aspects of complexity.

**Table 8**: Ranks of complexity for Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) user

| | Question 1 | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Production/Operational Processes | Non –TCS | 29 | 23.48 | 681.00 |
| | TCS | 23 | 30.30 | 697.00 |
| | Total | 52 | | |
| Frequency of Design Changes | Non –TCS | 28 | | |
| | TCS | 23 | 24.96 | 699.00 |
| | Total | 51 | 27.26 | 627.00 |
| Number of Products/Services | Non –TCS | 28 | 28.86 | 808.00 |
| | TCS | 23 | 22.52 | 518.00 |
| | Total | 51 | | |
| Level of Competition | Non –TCS | 29 | 29.34 | 851.00 |
| | TCS | 22 | 21.59 | 475.00 |
| | Total | 51 | | |

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**Table 9**: Complexity difference between Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) user [a]

| | Processes | Design Changes | Number of Products/Services | Competition |
|---|---|---|---|---|
| Mann-Whitney U Wilcoxon | 246.000 | 293.000 | 242.000 | 222.000 |
| W | 681.000 | 699.000 | 518.000 | 475.000 |
| Z | -1.672 | -.565 | -1.605 | -1.900 |
| Asymp. Sig. (1-tailed) | .0475** | .286 | .0545* | .0285** |

a Grouping variable : Question 1
* Significant at the 10% level
**Significant at the 5% level

Although the test illustrates that production/operational process complexity is significantly higher for Target Cost Setting (TCS) users than Non-Target Costing Setting (Non-TCS) users, not all of the relationships are as predicted. Contrary to the hypothesized relationship, the level of company competition and number of products/services are significantly greater for Non-Target Costing Setting (Non-TCS) users than Target Cost Setting (TCS) users at the 5% and 10% level of significance. There is no significant difference between Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users in relation to the frequency of major product/service design changes.

### 6.3. TESTING HYPOTHESIS (3)

The Mann-Whitney Wilcoxon Test was used to determine whether the satisfaction with the costing system is higher for Target Cost Setting (TCS) users than Non-Target Costing Setting (Non-TCS) users. By exploring the results in **Table10** and **Table 11**, it is apparent that, consistent with the hypothesis, the satisfaction is significantly higher for Target Cost Setting (TCS) users than Non-Target Cost Setting (Non-TCS) users for the method for calculating product and service costs. The other two satisfaction variables, although higher for Target Cost Setting (TCS) users than Non-Target Costing Setting (Non-TCS) users, are not statistically different.

**Table 10**: Ranks of satisfaction with costing system for Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) user

| | Question 1 | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Method for Calculating Costs | Non –TCS | 28 | 20.50 | 574.00 |
| | TCS | 20 | 30.10 | 602.00 |
| | Total | 48 | | |
| Performance Measurement Systems | Non –TCS | 28 | 22.93 | 642.00 |
| | TCS | 19 | 25.58 | 486.00 |
| | Total | 47 | | |
| Cost Reduction Information | Non –TCS | 27 | 21.57 | 582.50 |
| | TCS | 19 | 26.24 | 498.50 |
| | Total | 46 | | |

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**Table 11**: Satisfaction difference between Target Cost Setting (TCS) users and Non-Target Cost Setting (Non-TCS) user [a]

| | Calculating Costs | Performance Measurement | Cost Reduction Information |
|---|---|---|---|
| Mann-Whitney U | 168.000 | 236.000 | 204.500 |
| Wilcoxon W | 574.000 | 642.000 | 582.500 |
| Z | -2.571 | -.713 | -1.256 |
| Asymp. Sig. (1-tailed) | .005*** | .238 | .1045 |

a Grouping Variable: Question 1
* Significant at the 10% level
**Significant at the 5% level
***Significant at the 1% level

Further analysis is conducted to determine the difference in satisfaction between Target Cost Setting (TCS) users and Non-Target Cost Setting (Non-TCS) users who were considering or had considered and rejected Target Costing. The results illustrated in **Table 12** and **Table 13** below indicate that there is a significant difference in satisfaction for all three of the variables.

**Table 12**: Ranks of satisfaction with costing system for Target Cost Setting (TCS) users and Non-Target Cost Setting (Non-TCS) user

| | Question 1 | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Method for Calculating Costs | Non –TCS | 14 | 11.79 | 165.00 |
| | TCS | 20 | 21.50 | 430.00 |
| | Total | 34 | | |
| Performance Measurement Systems | Non –TCS | 13 | 13.88 | 180.50 |
| | TCS | 19 | 18.29 | 347.50 |
| | Total | 32 | | |
| Cost Reduction Information | Non –TCS | 13 | 13.81 | 179.50 |
| | TCS | 19 | 18.34 | 348.50 |
| | Total | 32 | | |

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**Table 13**: Satisfaction difference between Target Cost Setting (TCS) users and Non-Target Cost Setting (Non-TCS) user [a]

| | Calculating Costs | Performance Measurement | Cost Reduction |
|---|---|---|---|
| Mann-Whitney U | 60.000 | 89.500 | 88.500 |
| Wilcoxon W | 165.000 | 180.500 | 179.500 |
| Z | -3.051 | -1.431 | -1.451 |
| Asymp. Sig. (1-tailed) | .001*** | .0765* | .091* |

a Grouping Variable: Question1
* Significant at the 10% level
**Significant at the 5% level
***Significant at the 1% level

## 6.4. TESTING HYPOTHESIS (4)

A logistic regression is performed to determine whether the variables explored above can predict an adoption or Non-adoption of Target Costing. Although the existence of high correlations between variables prevents the ability to determine which factors are more effective at predicting adoption or Non-adoption of Target Costing, the combined predictive capabilities of all of the variables in the model are presented below in **Table 14**. A Hosmer and Lemeshow Test are performed to determine the goodness of fit of this model. The high significance value produced by this test, illustrated in **Table 15**, indicates that the model is adequate for predicting the use or Non-use of Target Costing.

**Table 14**: Classification table of predictive capabilities [a]

| | Question 1 | | Predicted | | |
|---|---|---|---|---|---|
| | | | Question 1 | | Percentage Correct |
| | | | Non-TCS | TCS | |
| Observed | | | | | |
| Step 1 | Overall Percentage | | | | 88.9 |
| | | Non –TCS | 24 | 3 | 68.4 |
| | | TCS | 6 | 13 | 80.4 |

a The cut value is .500

**Table 15**: Hosmer and Lemeshow Test

| Step | Chi-square | df | Sig. |
|---|---|---|---|
| 1 | 7.544 | 7 | .375 |

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### 6.5. TESTING HYPOTHESIS (5)

The calculated strategy index was utilized in order to determine whether Target Costing company' employ particular strategies. To conduct this analysis, the extreme 26% cost leadership and Differentiation Company were selected and categorized into 2 groups. A Non-Parametric Chi Squared Test was then performed. Consistent with the hypothesis, the results produced in **Table 16** and **Table 17** below indicates that there is no particular observed strategic focus consistently employed by Target Cost Setting (TCS) users.

**Table 16**: Strategy Categories

| | Observed N | Expected N | Residual |
|---|---|---|---|
| Cost Leadership | 6 | 5.5 | .5 |
| Differentiation | 5 | 5.5 | -.5 |
| Total | 11 | | |

**Table 17**: Strategy Chi Square Test

| | Strategy Categories |
|---|---|
| Chi-Square [a] | .091 |
| df | 1 |
| Asymp. Sig. | .763 |

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 5.5.

### 6.6. TESTING HYPOTHESIS (6)

An initial investigation into the descriptive statistics is undertaken to ascertain characteristics about the support given to Target Cost Setting (TCS) users by different functions in the organization. By exploring the summary statistics presented in **Table 18**, it is apparent that, inconsistent with Hypothesis4, the support from corporate finance in the design and implementation of Target Costing is higher than support from other functions. **Table 19**

**Table 18**: Rank of Function Support for Target Costing

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Corporate Finance Top Management | 20 | 2 | 4 | 3.20 | .768 |
| Production Management | 20 | 2 | 4 | 3.00 | .795 |
| Design Engineering Companying | 13 | 1 | 4 | 2.46 | .877 |
| Engineering Plant Manager | 13 | 1 | 4 | 2.23 | .927 |
| Marketing | 9 | 1 | 3 | 2.11 | .782 |
| Valid N (Listwise) | | | | | |

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A repeated measure Wilcoxon Signed Rank Test is used to examine the differences in responses to the support of various functions. The results indicate that although top management were not perceived as providing the highest support during the design and implementation of Target Costing , this support was significantly higher than the other functions as **Table 19**.

**Table 19**: Difference in support from functions

| | Top Management - Design | Top Management - Companying | Top Management - Production | Top Management - Plant Manager | Marketing – Top Management |
|---|---|---|---|---|---|
| Z | -2.401 | -2.041 | -1.552 | -2.414 | -3.169 |
| Asymp. Sig. (2-tailed) | .016** | .041** | .121 | .016** | .002*** |
| Asymp. Sig. (1-tailed) | .008*** | .0205** | .0605* | .008*** | .001*** |

* Significant at the 10% level
**Significant at the 5% level
***Significant at the 1% level

The extent of support from top management is reinforced by the responses to Question 15 of the survey instrument relating to the dynamics of Target Costing. The average agreement that top management support Target Costing actively ranks at the top of the seven elements of this section, as presented in **Table 20**. The belief that management provided support in the form of adequate resources for Target Costing efforts is also indicated by these results.

**Table 20**: Dynamics of Target Costing ranked by mean

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Top Management Benefit exceeded Cost Resources | 23 | 2 | 5 | 3.96 | .878 |
| Consensus about Objectives | 23 | 2 | 5 | 3.78 | .795 |
| Tied to Strategy | 23 | 1 | 5 | 3.57 | 1.237 |
| Linked to Competitive Strategy | 23 | 1 | 5 | 3.52 | .994 |
| Adequate Training | 22 | 1 | 5 | 3.32 | 1.129 |
| | 21 | 1 | 5 | 3.14 | 1.153 |

All of the dynamics of Target Costing factors received an average response higher than three, with the exception of the belief that adequate training was provided for using Target Costing. A comparison was conducted between the responses to determine whether top management support is considered to be significantly greater than the other factors relating to the dynamics and use of Target Costing. The results illustrated in **Table 21** suggest that support from top management is considered to be significantly higher than the other factors, with the exception that the benefit of Target Costing exceeded the cost

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**Table 21**: Difference between Top Management Support and Other Factors

| | Resources - Top Management | Tied to Strategy - Top Management | Consensus about Objectives - Top | Adequate Training - Top Management | Linked to Competitive Strategy - Top | Benefit exceeded Cost - Top Management |
|---|---|---|---|---|---|---|
| Z Asymp. Sig. (2-tailed) | -2.008[a] | -2.725[a] | -2.332[a] | -3.508[a] | -2.859[a] | -.954[a] |
| | .045** | .006*** | .020*** | .000*** | .004*** | .340 |

a Based on positive ranks.
* Significant at the 10% level
**Significant at the 5% level
***Significant at the 1% level

To perceive more about the support given to the Target Costing adoption, it would be desirable to conduct further tests to determine the impact of the support factors on the success of the Target Costing initiative. Regression would typically be used for this type of analysis; however, to conduct a regression analysis, certain assumptions must be met. A minimum of five cases per independent variable is required for a regression analysis. As this question only relates to Target Costing users, the number of cases is minimal and this criterion is not met. Consequently, correlation analysis was performed to determine the association between the dynamics of Target Costing and the success of the initiative. The results illustrate that top management support, tying Target Costing to the competitive strategies of the business unit and the benefit of Target Costing exceeding the cost are positively correlated with the success of the Target Costing initiative.

### 6.7. TESTING HYPOTHESIS (7)

The created performance index allows the comparison of the performance of Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users. The results of the Mann-Whitney Wilcoxon Test presented in **Table 22** below suggest that there is no difference in the performance score for Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users.

**Table 22** : Difference in performance for Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users. [a]

| | Performance Index |
|---|---|
| Mann-Whitney U Wilcoxon W | 116.500 |
| Z | 392.500 |
| Asymp. Sig. (1-tailed) | - 368 |

a Grouping Variable: Question1

Further tests were conducted to determine whether selecting respondents who agreed or strongly agreed with Question 15 that "The benefit had exceeded the cost" of the Target Costing Initiative would influence this result. The

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results of the Mann-Whitney Wilcoxon Test presented in **Table 23** and **Table 24** below illustrate that those companies who indicated that the benefit of Target Costing exceeded the cost have a significantly higher performance level to Non-Target Costing Setting (Non-TCS) users at the 10% level of significance.

**Table 23**: Ranks of performance for Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users

| | Question 1 | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Performance Index | No TCS | 23 | 16.11 | 370.50 |
| | TCS | 12 | 21.63 | 259.50 |
| | Total | 35 | | |

**Table 24**: Difference in performance for Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users

| | Performance Index |
|---|---|
| Mann-Whitney U | 94.500 |
| Wilcoxon W | 370.500 |
| Z | -1.512 |
| Asymp. Sig. (1-tailed) | |

* Significant at the 10% level

Additional tests also explored the performance result in relation to the number of years that a company had been using Target Costing. However, there was no indication of a difference in performance for Non-Target Costing Setting (Non-TCS) users and those who have been Target Cost Setting (TCS) users for more than two years.

## 7. DISCUSSION AND IMPLICATION OF RESULTS

Current research set out to explore Target Costing in Iranian companies. In particular, the research attempted to determine comparative analysis of Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users. Furthermore, the impact of Target Costing on organizational performance was examined in the Iranian company' environment. Due to the current research Target Cost Setting (TCS) users have a more promising and optimistic perception of the advantages associated with Target Costing than Non-Target Costing Setting (Non-TCS) users' .This is also apparent for company considering an adoption. In contrast, those who have considered and rejected Target Costing appeared to have the most negative perceptions of Target Costing advantages, followed closely by those who have not considered Target Costing. Although this may be a result of a greater exploration into the expected costs and benefits preceding the decision to adopt, this may also be an indication that Target Cost Setting (TCS) users are subsequently realizing these advantages.

Analysis of the responses suggested that on average, all respondents had the highest agreement that Target Costing allowed greater insight into cost causation. The difference in perceived advantages for Target Cost Setting (TCS) users and Non-Target Costing Setting (Non-TCS) users beyond this point potentially illustrates

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that Non-Target Costing Setting (Non-TCS) users do not perceived that this greater cost causation insight can consequently allow other advantages to be realized. The results of the second hypothesis shows Although Target Cost Setting (TCS) users reported higher operational process complexity; the results indicated that Non-Target Costing Setting (Non-TCS) users had more products and services, as well as a more intensively competitive company. This indicates that only some elements of complexity are suggestive of the need for Target Costing adoption. The results also illustrate the varying complexity that is apparent in similarly sized large companies, further suggesting that Target Costing and complexity relationship cannot be attributed to company size, without making significant assumptions about the levels of complexity in some large organizations. Despite the evidence suggesting that Target Cost Setting (TCS) users realize benefits from Target Costing, and replace their traditional costing system with a superior one, the prediction that satisfaction with costing would be greater for Target Cost Setting (TCS) users than non-users did not produce all of the predicted results. However, it is apparent that Non-Target Costing Setting (Non-TCS) users who are considering or have considered and rejected Target Costing have a significantly lower satisfaction with costing than Target Cost Setting (TCS) users. Non-Target Costing Setting (Non-TCS) users who have not considered Target Costing adoption may potentially already have an adequate level of satisfaction with the costing system which they employ, therefore reducing the need to implementation of Target Costing .A lack of perceiving may also be apparent in these companies of the additional knowledge that could be acquired if Target Costing is employed. The results from the fifth hypothesis testing add interesting insight into the nature of Target Costing in Iranian companies. No particular competitive strategy is apparent for Target Cost Setting (TCS) users .It is also apparent that some companies do not agree that Target Costing is tied to competitive strategy. This has implications for research attempting to connect Target Costing to a particular strategic focus. The support of top management is apparent in Target Costing adoption. However, contrary to the hypothesis, top management is not perceived as providing the greatest amount of support relative to other functions. Furthermore, the lack of training apparent is slightly contradictory to the perceived role of the support of management in the Target Costing adoption process. Although in theory management are believed to have the ability to channel adequate resources to the adoption and promote perceiving company-wide, the indication from the responses was that this is not the case. However, overall top management support is still significantly greater than most of the other organizational functions. This top management support is also positively associated with the success of the Target Costing initiative, potentially indicative of its importance in the Target Costing process. Furthermore, the existence of overall support for Target Costing is reinforced by the identifiable Target Costing champion present in the majority of the Target Costing users' company. The results do not initially support the hypothesis that Target Cost Setting (TCS) users realize higher performance than Non-Target Costing Setting (Non-TCS) users. However, Target Cost Setting (TCS) users who perceived that the benefits of the initiative outweigh the costs have a significantly higher performance than Non-Target Costing Setting (Non-TCS) users. This result illustrates that maybe Target Costing may in fact be a strategic cost management technique beneficial in the Iranian company's environment. This has

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important implications for Iranian company, particularly those who are considering Target Costing adoption. This also has implications for companies who may still have misconceptions regarding the applicability of Target Costing to their organization. The adoption of Target Costing, however, may still be in process for Iranian companies. The results of this study indicate that 44% (23 out of 52) of Iranian company have adopted the technique in the past five years. This displays the possibility that Target Costing may have a greater influence in Iran over the next few years.

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