

**TARGET COST MANAGEMENT, STRATEGY
AND ORGANIZATION
IN THE AUTOMOTIVE INDUSTRY**

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Figures included at the end of the document.

I. INTRODUCTION

Target cost management (TCM) is an innovation of Japanese management accounting system and by common sense has been considered with great interest by practitioners. Nowadays, TCM related dissertations, papers, articles are widely being published in special journals both in North America and Europe; this may explain why seminars and workshops about TCM are so frequent¹.

Even in the academicians' seminars and other meetings of research organizations, TCM related articles have a high probability to be accepted and reported. Last year for example, the American Accounting Association's seminar held in Boston about "Japanese cost management"² was focused on the formulation of TCM (Okano-Shimizu, 1994; Kato, 1995).

The above situation shows that the attention put on TCM is very different from that one put on JIT- "Japanese production system"- in the 1980s. So far, there were debates concerning the a priori that "The competitiveness of Japanese industries" is the outcome of the management system excellence. With many problems facing Japanese industries recently, the originality in the research and development system prior to the introduction of a new product becomes a point of great importance. Nowadays' fiery competition is likely to speed up the TCM system.

Nevertheless, many of the published cases about TCM system have been made in special journals. Academic journal publications are few in comparison. Academic researches about TCM are now in the embryonic stage³.

In the light of that situation, this paper seeks to examine the importance of the relationship between strategy, organization, and TCM. Three directions of TCM are also presented, as well as the intertwines between Product Manager Allowance, ABC/ABM. Then future TCM research orientation is made⁴.

II. TARGET COST MANAGEMENT EXTENSIONS

1. Multiple Target Cost Management

Until now, the focus on TCM was only made for a single product. This is mainly because attention was put on product manager for the development of a single model in the automobile industry.

In Toyota, there was a big restructure in product development center in 1992. There are now four development centers: Rear Wheel Driver Center, Front Wheel Driver Center (FWD), Commercial and Recreational Vehicle Center, and Advanced Technology Center. This transformation has changed the responsibility of product manager. Clark and Fujimoto (1991) described the Japanese product manager as a "heavyweight" product manager. However, prior to Toyota's product development organizational change, product manager' task was "less heavier", due to the multiplicity of models. With the change, they have really regained their responsibility (Okano, 1995; Nobeoka, 1995).

Under the new organizational design, while the product manager is independent for the development innovation and specificity of a model, cooperation and collaboration with others in the center become strong since the system enforces the commonality of parts and multi-project orientation (Nobeoka, 1993). This is the other main reason for the restructuring of Toyota's product development center.

The outcome is that now, TCM activities are performed for each development center. In each center, information sharing between product managers, cost estimators⁵, and other design team members is now very smooth⁶. This shows that the previous concept of TCM is no more relevant. TCM activities have to be performed for multiple projects. TCM innovation that fits with multi-projects product development has to be made.

2. Technology Focused Target Cost Management

Innovation on core technology is becoming very important in many industries. Logistic strategy including suppliers procurement strategy, and location strategy as well are becoming important in today's competitive environment. Within this framework, TCM has to be extended to include the whole business strategy. It can no longer be limited only to product strategies. In Toyota for example, management has to think about how to deal with TCM in the fourth technology center. This is what we mean by TCM for strategic technology management.

While deciding about the use of core technology for a particular product, the implication on profitability of the product, and other products which can benefit from the same technology must also be estimated. In the case of investment decision for a particular product, the evaluation should

not be limited to that product, but has to take into account other products that can benefit the investment. This shows the importance to think about R&D TCM and technology focused TCM⁷.

3. Manufacturing Focused Target Cost Management: Linkage Between Cost Maintenance and Kaizen Cost Management

It is believed that target costing activities are mainly carried out at the concept and development stage of a product. This belief is based on the assumption that about 80 percent of costs for a particular product is locked before the beginning of production stage. Even after all TCM related activities are effectively done during the concept and development stage, this does not assure that once the production begins, costs will remain as predicted. Therefore, the effectiveness of TCM depends on the effective linkage between cost maintenance and kaizen costing. For example, when a target cost cannot be met after production begins, a "special committee of kaizen cost management" made of manufacturing divisions and R&D members is set to deal with the case⁸.

Cost maintenance and kaizen costing management are activities by department within a particular period of time. Calculation related to performance evaluation are also done by department within a particular period of time. However, in order to be effective, TCM has to involve not only production engineer or process engineer, but also the foreman. The latter will collect manufacturing information and do feedback to design team members. To reach this objective, cost maintenance and kaizen costing activities will concern a particular product.

Therefore the TCM for a factory is important. Until now the focus was made only on production engineering department; TCM should also involve manufacturing department members though it is not easy. Doing so, the cost drivers that are "invisible" from the design engineer will become visible. This raises the importance of manufacturing focused TCM.

(Figure 1: Target Cost Management Extensions)

III. CALCULATION SYSTEM AND TCM

1. Setting of Target Cost

(1) Product Manager Allowance (PM Allowance)

Okano (1995b,c) divides target cost management into two processes, "calculation system" and "management system", and describes that PM allowance, which is a formal slack PM has, and informal slacks which each department has for the analysis of the former.

"PM allowance" is a slack which is designated to be used by a PM in the case that factors like design change, market change, as well as cost estimation miss occur and imply supplement activities in order to reach the target cost. So far, the concrete understanding of PM allowance is not yet clarified.

PM allowance is said to be about one percent of a target cost. However, according to Nishida (1995) the allowance of the first "Daihatsu Charade" represented 10 percent. And Kajita stated that Nissan in its program to transfer TCM outside Japan, set an allowance system for PM. Other members of the development team of course are also concerned by that allowance. However a PM coordinates all activities to fill the gap between the concept and the cost occurrence. For one copier maker, this allowance is the slack to be used in each step of development stage -design change risk, composition change risk, cost estimation change risk, and procurement change risk- under the so-called "cost variance risk management".

2. ABC/ABM and Target Cost Management

As described earlier, it is important to link TCM with other management systems like Kaizen cost management. One example of linkage in terms of calculation system can be showed in the following two ways. The first one concerns the allocation of overhead costs only to parts specifically related to the product. In this way, the focus can be made on design costs. In the case of Toyota, while the design costs of outsourcing parts include supplier's raw material costs, direct wages, indirect labor cost, manufacturing expenses, support division expenses, general administrative and sales division expenses, profit, packaging cost for transportation, and die subcontracting cost, the design cost of in-house parts includes only the direct material cost and not including process costs such as direct labor cost and overhead which have no direct linkage with the product.

The second way concerns the best possible allocation of overhead to products at the design stage. In this situation, the activity-based approach could be used within the TCM process (See figure 2).

(Figure 2: Relation Between TCM, Cost Maintenance and Kaizen Cost Management)

In case of implementing an activity-based approach, a careful analysis of cost drivers is a must. The arguments expressed concerning the analysis of cost drivers of only the costs occurred before and after the production process is not sufficient. In order to link ABC/ABM to TCM process, an additional analysis of cost drivers related to pre-determined costs at the design and pre-production stages is necessary.

(Figure 3: Determined Cost Curve and Occurred Cost curve (Kato, 1993, p.25))

Figure 3 shows the difference between the occurred costs and the determined costs, which are important, before and after the production process and that explains the importance of TCM as an upstream management.

But, until now, within the activity-based approach, the focus was made only on the determined costs. The reason is that the concept of cost driver itself concerns occurred costs only. Of course the activity-based approach is after all based on the conventional accounting principles concerning the concept of costing. In many companies that implemented TCM, this latter is based on conventional accounting principles concerning the concept of cost.

However, the calculation of determined costs does not require the use of conventional cost accounting system inside the company but many kind of cost information which can be generated from outside the company (e.g., cost information from suppliers, competitor analysis, benchmarking tools, and so on). Therefore, in order to create a linkage between TCM and the activity-based approach, a new way of thinking on the cost driver concept is necessary⁹.

Shank and Gojindarajan (1993) focused on the concept of cost driver following Riley (1987). They broke up a list of cost drivers into two categories; the first category called "structural" cost drivers deals with the following strategic choices: scale, scope, experience, technology, and complexity. These choices constitute the primary factors of cost change at the calculus level. The second category of cost drivers is called "executional" cost drivers which constitute determinants of a successful cost position. The most important executional cost drivers include: work force involvement, Total Quality Management (TQM), capacity utilization, plant layout efficiency, product configuration, good relation with suppliers, and so on.

The structural cost drivers have no direct linkage with efficiency and the number of cost drivers identified does not bring necessary any satisfaction. However, the executional cost drivers are linked to efficiency and the more cost drivers are identified the more it brings better

satisfaction. Moreover, the insights from analysis based on structural drivers are too often old fashioned and while the consultant who performs a strategic cost analysis is gradually directing his attention on the executional cost drivers, the accountant from his side is still grasping the structural cost drivers¹⁰ (Shank and Govindarajan, 1993, p.22).

Although many studies have been accumulated, Shank and Govindarajan's original assertion is that costs are not assigned to only products that consume activities, great importance is given to "which activities really add value to the customer" and "those activities are performed efficiently or not" (See Figure 4). That is to say, according to Shank and Govindarajan, only activities in box A should be assigned to products and activities in box D need to be examined in order to improve their efficiency so that they can be assigned to products. However, examining whether the resources devoted to activities in box B can or cannot be re-deployed in value-adding activities is necessary. Finally, activities in box C should be eliminated.

(Figure 4: Activity Cost Structure (Shank and Govindarajan, 1993))

On the other hand, Shank and Govindarajan consider the activity-based approach a useful tool for strategic analysis but not an accounting system. This point of view is explained in the following assertion: "ABC is seen as a very useful financial tool of strategic management. But ABC is not necessarily the primary financial tool, or even one of the most important. It is certainly not a management accounting panacea. Furthermore, our experience indicates that the benefits of ABC in product line assessment and activity management can best be achieved by avoiding its formalization as part of a general ledger bookkeeping system". (p.180-181) Finally, "We see ABC as a useful strategic analysis tool, but not as the primary tool" (p.21). "ABC: strategic tool, not an accounting system" (p.180).

Shank and Govindarajan used a constructive and elaborated analysis on cost drivers in order to criticize the ABC approach.

IV. CONCLUSION

The conventional management accounting was focusing only on production process stage, while with TCM a link must exist between product development and accounting. However, as described in the introduction, the research as well as the education field still have some problems to solve. As an example, it is recognized that TCM without a concurrent engineer and an upstream management cannot be effective. But this relation between concurrent engineer and an upstream management has to be clarified in order to locate where can both of them be effective. In other words, if the responsibility and the authority of each of them within the R&D team does not change, many problems will take place. For this, the Management By Objective approach, which is being used not only by the European companies but also by Japanese companies, and TCM have to be effectively linked. The ways of link must be clearly identified and this can be made by the behavioral or the organizational aspect of TCM.

Also, before implementing a TCM project, the possible functionality of the system as well as its dysfunctionality must be clearly and carefully defined (Kato, 1993). Focusing on the dysfunctionality, a questionnaire-survey was made by Shields, Chow, Deng and Kato (1995) dealing with the dysfunctionality inside and outside the TCM itself. Okano (1995) defined this non-functionality as essentially the gap between the accounting system and the management system.

Other important issues concerning TCM are TCM and organizational learning surrounding it (Kato-Okano, 1995), TCM and environmental issues (Green TCM), Continuous Acquisition and Life Cycle Support (CALC) (Iwaguchi-Tani, 1996), TCM and its global networking including transferability (Kato (1993), Okano (1995a,b), Bhimani-Okano (1995)), international comparison of TCM: the Japanese context¹¹ versus the international one, and so on.

Notes:

1 Refer, for example, in the academic field, to the recent researches on Japanese management accounting which are presented at the EAA (European Accounting Association) and AAA (American Accounting Association) meetings, and, in the practical field, to the CAM-I (Consortium for Advanced Manufacturing, International).

2 In this seminar, many cases (Cooper, 1994a-b) were presented by Cooper and discussed before being condensed and published (Cooper, 1995).

3 TCM publications in academic journals are still not accepted in the US due to the incompatibility of the research methodology with Japan.

4 Refer to the Japan Accounting Association's report (JAA, 1994) which will be finalized and published both in Japanese and English.

5 In Toyota, the person in charge of cost estimation is called "CL" and used to be usually a design engineer or a purchasing staff.

6 Toyota has two ways of management. The "vertical management" (management by segment) consists of the profit management regarding each of the following issues: division and area (North America, Europe, etc.) and factories. On the other hand, "the horizontal management" (management by nature of expenses) consists of direct labor, direct costs by factory, fixed costs, sales and logistics, and administrative expenses. In addition to that, a management by core unit or core component is becoming important in Toyota.

7 But this does not mean that technology focused TCM had not been implemented before: in 1980 a special TCM project focusing on core components for FWD (Front Wheel Drive) cars was introduced.

8 Kaizen cost management for each product was introduced by Monden in 1995.

9 Determination of target costs referring to Shimizu (1996).

10 This is related to what Porter referred to as cost leadership and differentiation (Porter, [1980][1985]). The relation between this type of strategy and TCM must be examined (Accounting Frontier Forum, 1994).

11 Okano (1995b) defined "Japanese Management Accounting" from the viewpoint of visibility and invisibility of accounting.

Figure 1: Target Cost Management Extensions

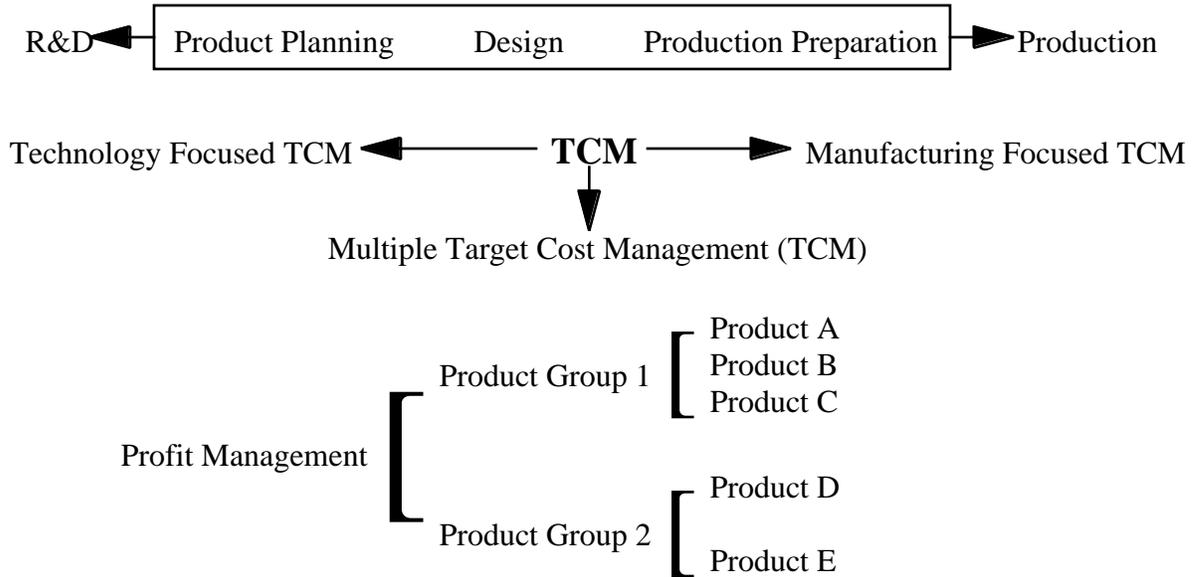


Figure 2: Relation Between TCM, Cost Maintenance and Kaizen Cost Management

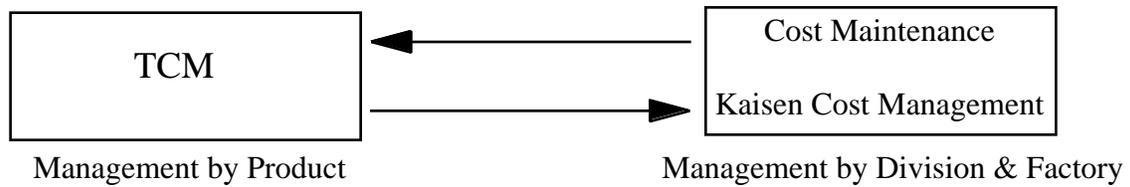
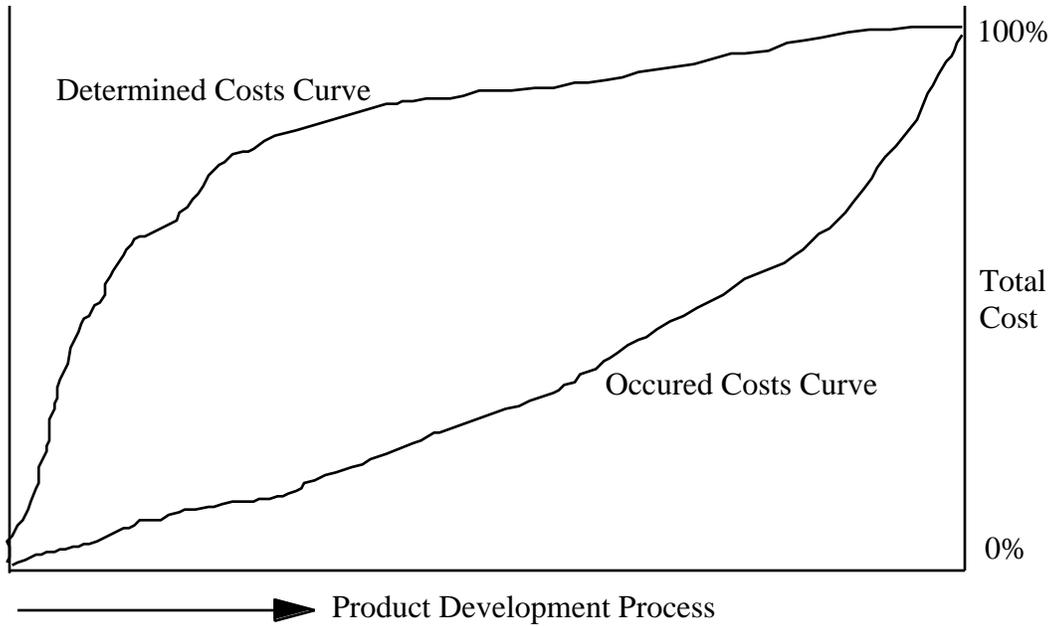
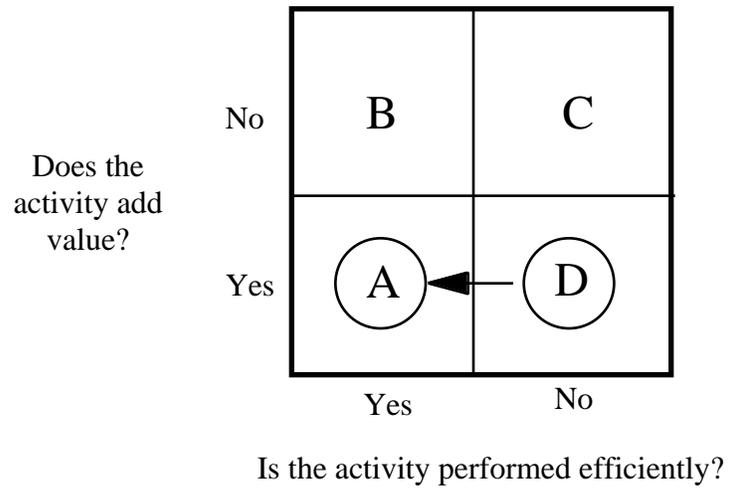


Figure 3: Determined Cost Curve and Occured Cost Curve
 (Kato, 1993, p.25.)



| Cost occurred before manufacturing | Manufacturing Costs | Costs occurred after manufacturing (1) | Costs occurred after manufacturing (2) |
|------------------------------------|---------------------------------------|--|--|
| R&D expenses | Material cost Overhead costs, etc. | General expenses, etc. | Sales promotion costs Service costs Wastes costs, etc. |

Figure 4: Activity Cost Structure (Shank and Govindarajan, 1993)



REFERENCES

Accounting Frontier Forum (1994) *Frontier of Management Accounting*, Chuokeizaisha (in Japanese).

Bhimani, A. & H. Okano (1995) "Target Excellence: Target Cost Management at Toyota in the UK", *Management Accounting (UK)*, Vol. 73, No. 6.

Clark, K.B. & T. Fujimoto (1991) *Product Development Performance: Strategy, Organization, and Management in the World Auto Industry*, Boston, Mass.: Harvard Business School Press, 1991.

Cooper, R. (1994a) "Cost Management in a Confrontation Strategy: Lessons From Japan" (sample module), Harvard Business School Publishing.

Cooper, R. (1994b) "Cost Management in a Confrontation Strategy: Lessons From Japan (Instructor's guide)", Harvard Business School Publishing.

Cooper, R. (1995) *When Lean Enterprises Collide: Competing Through Confrontation*, Boston, Mass.: Harvard Business School Press.

Iwabuchi, Y. & T. Tani (1996) "CALs and Strategic Cost Management", *Kigyo Kaiki*, Vol. 48, No. 2 in Japanese.

Japan Accounting Association (1994) *Report of the Special Committee on Target cost Management (Final Draft)*, Japan Accounting Association.

Johnson H. T. & R. S. Kaplan (1987) *Relevance Lost: The Rise and Fall of Management Accounting*, Boston, Mass.: Harvard Business School Press.

Kajita, M. (1994) "Transferring Target Cost Management: Nissan UK's Case", *Business Insight (University of Kobe)*, Spring.

Kato, Y. (1993) *Target Cost Management: A Strategic Cost Management System*, Tokyo: Nihon Keizai Shinbunsha.

Kato, Y. (1994) "Future Direction of Target Cost Management Research", *Kokumin Keizai Zasshi (University of Kobe)*, Vol. 169, No. 5 (in Japanese).

Kato, Y. (1995) "Japanese Management Accounting in US Universities", *Kokumin Keizai Zasshi*, Vol. 171, No. 4 (in Japanese).

Kato, Y. & H. Okano (1995) "Target Cost Management and Organizational Learning", Paper presented at Nikkei Kodo Conference, April 1-2, 1995 (in Japanese).

Monden, Y. (1994) Cost Reduction Systems: Target Costing and Kaizen Costing, Cambridge, Mass.: Productivity Press..

Nishida, H. (1995) Product Development of Sharade by Daihatsu, Nikkan Kogyo Shinbunsha.

Nobeoka, K. (1993) "Multi-Project Management: Strategy and Organization in Automobile Product Development", Ph.D. Dissertation, MIT, Sloan School of Management.

Okano, H. (1995a) "Target Cost Management at Toyota", Paper Presented at the Sponsors Meeting, International Motor Vehicle Program, Massachusetts Institute of Technology, June 4-7, 1995.

Okano, H. (1995b) Japanese Management Accounting: A Historical and Institutional Perspective, Tokyo: Chuo Keizaisha (in Japanese).

Okano, H. (1995c) "Target Cost Management: An Approach for Regaining Relevance", Kigyo Kaikei (Accounting), Vol. 47, No. 12 (in Japanese).

Okano, H. & N. Shimizu (1994) "The future Direction of Research and Education on Japanese Cost Management", Presented at the Annual Conference of Western Division of Japan Cost Accounting Association, Dec.16, 1994.

Porter, M. E. (1985) Competitive Strategy, New York: The Free Press.

Porter, M. E. (1985) Competitive Advantage, New York: The Free Press.

Riley, D. (1987) "Competitive Cost Based Investment Strategies for Industrial Companies", in Manufacturing Issues, New York: Booz, Allen, and Hamilton.

Sakakibara, K. (1995) R&D Management in Japanese Companies, Tokyo: Chikura Publishing, Co (in Japanese).

Shank, J. K. & V. Govindarajan (1993) Strategic Cost Management: The New Tool for Competitive Advantage, New York: The Free Press.

Shields, M. D., C. W. Chow, F. J. Deng & Y. Kato (1995) "Antecedents and Consequences of Standard-Based Control Systems for Knowledge Workers: Study of Automobile Design Engineers", Discussion Paper Series, School of Business Administration, Kobe University.

Shimizu, N. (1996) "On the Significance of Target Cost Management as Profit Management", *Kaikei (Accounting)*, Vol. 149, No. 2 (in Japanese).

Yamamoto, K. (1993) "ABC as Target Cost Management on Overhead", *Economics Research (Osaka Prefecture University)*, Vol. 39, No. 1 (in Japanese).