

Featured Articles

Global Cost Management Solution Supporting Business Strategy

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OVERVIEW: In response to factors such as demand that fluctuates on a global scale and the intensification of price competition, the establishment of development, production, and supply capabilities based on a globally optimized production model has become an urgent task for Japanese manufacturers in recent years. There is also a need to further improve competitiveness and formulate and implement plans that can effectively deliver increased revenue and long-term growth. One of the ways Hitachi can contribute to management in this era of global business is by supplying a cost management solution that supports target costing, business planning, and product profit planning in ways that take account of the benefits of regional strategy, technology strategy, and product strategy.

INTRODUCTION

IN response to factors such as demand that fluctuates on a global scale and the intensification of price competition, Japanese manufacturers have in recent years shifted away from pursuing a business model based on domestic production and exports to overseas markets to instead adopt globally optimized production models. As production is increasingly shifted overseas, there have also been moves to reassess manufacturing in Japan prompted by the end of the strong Yen and increasing production costs at overseas sites due to rapidly rising labor costs. Each company needs to undertake planning against the background of a dynamic business environment based on strategies that take account of factors such as their respective product characteristics, production circumstances, and market competitiveness.

Companies have been slow to adopt information technology (IT) for this work, and for the many companies that rely on the skills and experience of expert staff using information from core business systems and specific documents, it is difficult to formulate plans for dealing with demand in Japan and elsewhere that combine a wide range of factors, including global supply infrastructure, market movements, and the level of competition.

This article provides an overview, describes the features, and presents case studies of a cost management solution that supports target costing, business planning,

and product profit planning in ways that take account of the benefits of regional strategy, technology strategy, and product strategy as a means of contributing to managing a business so that it will thrive amid global competition.

OVERVIEW OF GLOBAL COST MANAGEMENT

The management strategy of manufacturers has shifted away from “making a living by selling what you build,” based on a model of making products in Japan and exporting them overseas, and toward a globally optimized production model of “making a living by building what you can sell.” In this environment, it is important to have product plans for developing products in demand from world markets that are characterized by different levels of economic strength, culture, and infrastructure, and then producing and selling these products at a competitive price. Hitachi proposes cost management based around product profit planning as a solution.

Target Businesses and Requirements

Strategy formulation and planning are among the challenges of management. This includes determining from a profitability perspective which products should be marketed in which regions, calculating expected product profitability, optimizing the supply chain to maximize profitability, and achieving target costs in order to be cost-competitive.

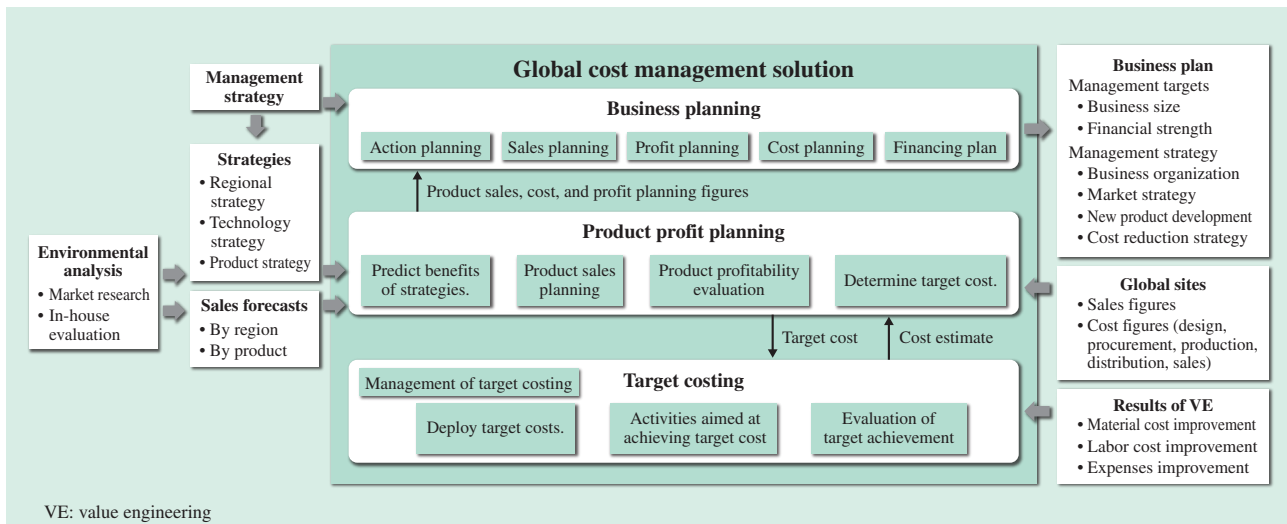


Fig. 1—Overview of Global Cost Management.

At manufacturers that operate a globally optimized production model, the management of cost planning and activities aimed at achieving a target cost are effective at maintaining product profitability. A global cost management solution that performs integrated management of business planning, product profit planning, and target costing contributes to managing the business so that it can thrive amid global competition.

Cost management is an effective way to overcome these challenges. This article gives an overview of the business planning, product profit planning, and target costing aspects of cost management, and describes how these relate to each other (see Fig. 1).

Overview of Cost Management Solution

(1) Business planning

Business planning requires specific “action planning” for implementing strategies based on the management strategy, “sales planning” determined by itemizing the company’s sales and conducting environmental analysis and action planning, “profit planning” for determining target profitability that considers the profit the company wants to achieve and is capable of achieving, “cost planning” for itemizing costs and determining the cost of each cost expense item, and the formulation of a “financing plan” for investigating financing based on sales planning and cost planning to formulate a funding and repayment plan. The challenge for planning based on a globally optimized production model is to bring together the data for coordinating product profit planning and business site profit planning.

The cost management solution sets up sales, cost, and profit planning by region and by product as part of product profit planning and, at the same time, sets up sales planning, cost planning, and profit planning for business planning by collating data for each business site. This method is designed to shorten planning times

and improve data accuracy. It enables managers to contribute their ideas and provide convincing plans by presenting graphs of planned figures at review meetings and using in-meeting simulations of different figures when reporting to coordination meetings between headquarters departments and other sites, operational department managers, the management board, and others.

(2) Product profit planning

Product profit planning involves sales planning and determining target costs for each product to calculate profitability. The challenges lie in adding up costs at global production sites where material costs, labor costs, expenses, currencies, and management granularity are different even for the same product; rationally allocating the cost of non-manufacturing expenses that cannot be attributed to specific products; and figuring out how to incorporate into product profit planning the strategy effects set as measures for increasing profit, such as by reorganizing production sites.

Basic sales planning data entered into the cost management solution consists of product-specific and region-specific sales forecasts that incorporate the results of environmental analyses such as market research or in-house analysis. The target cost is determined with reference to a product’s target profit and market price. Product profitability is calculated from forecast sales and cost estimates tabulated in cost tables for each site and assessed in terms of management indicators such as operating

profit, marginal profit, and break-even point. Next, profitability improvement measures such as increasing sales or reducing costs are entered as strategies and a simulation of product profit planning for each fiscal year is performed incorporating the relevant amounts for each period to finalize product profit planning.

(3) Target costing

Target costing supports activities aimed at achieving the target cost specified by product profit planning, and provides cost estimates as feedback for product profit planning. Target costing is something that many companies have conventionally performed as part of activities aimed at achieving a particular manufacturing cost during the planning and development stages. However, in addition to problems such as the fact that cost improvement know-how varies from person to person, which prevents organizations from making use of empirical values; costing calculations taking up time that could have been spent working on improvements; and the inability to link the results of activities straight back to product profit planning; there are also difficulties associated with a global era, including demand fluctuations, local production, variations in material costs, and exchange rate fluctuations.

The cost management solution provides a framework with the functions required for the business processes used in target costing. The target costing activity management function enables realtime sharing of information about things like activity progress and the achievement of target costs. The plan conceptualization stage support function enables a cost evaluation to be conducted prior to starting design by

breaking down the target costs based on functional blocks and other units that make up the product and utilizing data on similar components to calculate the product cost. The development stage support function calculates a cost estimate by specifying areas for improvement in functional blocks, units, and individual parts and materials together with the schedule for when the improvements are to be made, their difficulty, and adding up the financial benefits. It also provides functions for global design and production that include multi-currency data entry, automatic conversion to the master currency, and exchange rate simulation.

Features of the Cost Management Solution

(1) Integration of multiple data sources linked to products

Product profit is calculated by subtracting costs from sales. The challenges lie in adding up the production costs and allocating the cost of non-manufacturing expenses. While production costs are obtained by multiplying the quantity and unit price of each cost expense item, because the quantity, unit price, and currency are different for each production site, and even for the same product, this poses a problem in terms of how to manage data sources in order to achieve simple data manipulation.

In the cost management solution, production cost data management focuses on the parts list management method used in product design. It uses a tree structure in which the product is the root and the cost expense items are the branches, and enables production cost management that can perform simulations using the

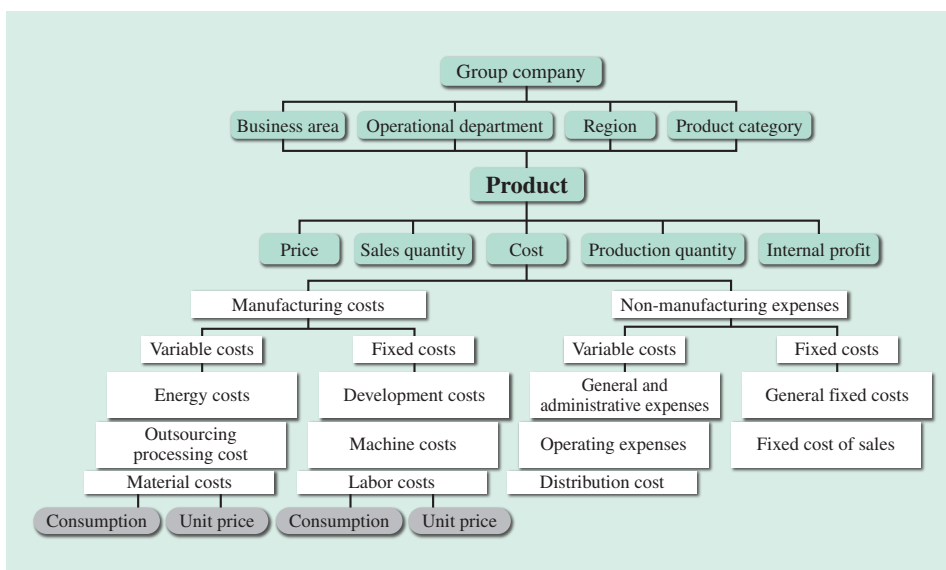


Fig. 2—Structure of Product Data for Cost Management. Cost management requires the manipulation of various data linked to products. Hitachi has built an easy-to-use solution by adopting its own unique data model.

cost tables for each production site. Non-manufacturing expenses are the costs associated with getting from the production site to the market, and include things like sales, distribution, and administrative expenses. They are different for different combinations of production site and market. Because they do not relate to specific products, finding a rational mechanism for the cost allocation of products is a challenge. To solve this, non-manufacturing expense calculations are grouped into production site, market, product, and cost expense item combinations, and the calculation formulas are templated, with a cost allocation calculation performed for each cost expense item (see Fig. 2).

(2) Simulation of benefits of cost reduction strategies

Two ways of improving product profitability are to plan and execute strategies decided on by management, or for design and production staff to perform target costing. Strategies include measures for increasing sales (such as establishing new sales offices, introducing new products, or changing pricing), and measures for reducing costs (such as changing the sales route, reorganizing production sites, or changing the mix of in-house and external production), with a way of evaluating the return on investment in advance being essential to management decision-making. The cost management solution enables such evaluations to be made in advance by selecting the applicable products and cost expense items for each strategy and estimating the profit contribution, and then utilizing this information in product profit planning (see Fig. 3).

Target costing is the activity of formulating specific plans for manufacturing within the target cost specified by product profit planning prior to the product entering full production. To achieve the target cost, it is necessary to add up the production costs from the plan conceptualization stage in the early part of product design, and to calculate a highly accurate cost at the parts and materials level during the detailed design stage, and provide the result of this evaluation as feedback to the design department. In the cost management solution, the ability has been provided to add up production costs for a product by adding production process information to the design parts list, and by adding the labor cost, machine cost, tooling cost, energy cost, and other information on costs in the production process along with the unit prices for parts and materials. By collating these data sources for adding up production costs in a database, it is possible to automatically select the products and cost expense items that are relevant to cost improvements such as changes to parts and materials procurement

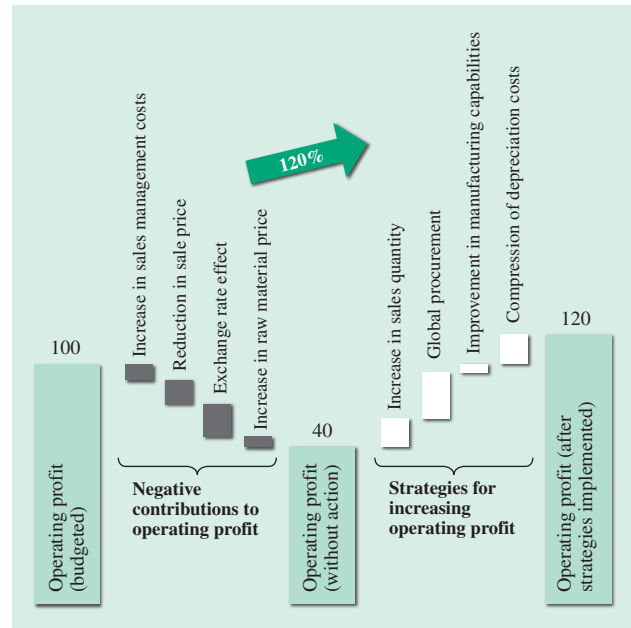


Fig. 3—Graph Showing Benefits of Strategies for Profit Planning.

The graph reflects the factors that have a negative effect on initially budgeted operating profit and the benefits of strategies for increasing operating profit.

or changes to processes and equipment, and to take account of the benefits of these improvements when adding up product costs. It has also achieved effective cost management by linking data on strategy implementation and target costing at the product and cost expense item level.

(3) Business operation support

The cost management system deals with highly confidential information that is routinely updated by numerous people and organizations. The provision of operation support functions is important for using the system. At meetings held in a variety of circumstances, such as management strategy meetings and design reviews, it is necessary to call up information that was used in previous meetings and elsewhere. In response, Hitachi created a means for one-touch recall, which it achieved through the dynamic linking together of meeting bodies and the data they use, and also recording storage folder link information made up of other reports, etc. that are used at meetings. The management information used in cost management includes a mix of highly confidential commercial information (such as new product developments and revenue plans) and workplace-level information (such as parts and material consumption or process changes). Access control is enabled by using master records that specify the screens and data access

permissions for each user identity (ID). In the case of entering cost information for overseas sites, production costs can be entered in the local currency, parts and materials procured globally can be entered in multiple currencies, and then they can be converted to the master currency in realtime using exchange rate master records.

ACTUAL EXAMPLES AND BENEFITS

Product profit planning based around the cost management solution can be used in medium- and long-term business planning. This section gives an overview of its use for medium-term planning at a particular manufacturer, and describes the challenges to be overcome, as well as the benefits.

The management planning department at a manufacturing company had been in the practice of using the skills and experience of expert staff to conduct medium-term planning for its globally optimized production model with the help of spreadsheet software. A medium-term plan is produced based on product profit planning after product cost and profitability evaluation. The planning procedure involves study at headquarters followed by a review at overseas sites, with reporting to and

approvals from the operational department managers and the management board being required. The challenge was to determine how to solve the problems of the time taken to provide requested information, the narrow range of discussion due to limited options for presenting information or undertaking analyses, and the difficulty of cause analysis due to the time taken to determine the effects of changing circumstances.

They set out to overcome these problems by building a cost integration database, a basic function of the cost management solution that consolidates the information required for medium-term planning and allows it to be referenced by product, site, and time, and by providing application framework functions. This enables the adding up of costs obtained in product profit planning; the analysis of product cost structures; profit simulations that treat price, quantity, and exchange rate as variables; and updating of the plan values for the predicted benefits of management strategies. It also enables automatic deployment in business site plans during product profit planning.

Implementation as a system achieved shorter planning times; raised the level of strategy debate by expanding the scope of information sharing, presentation, and use; and enabled timely contribution of ideas by managers (see Fig. 4).

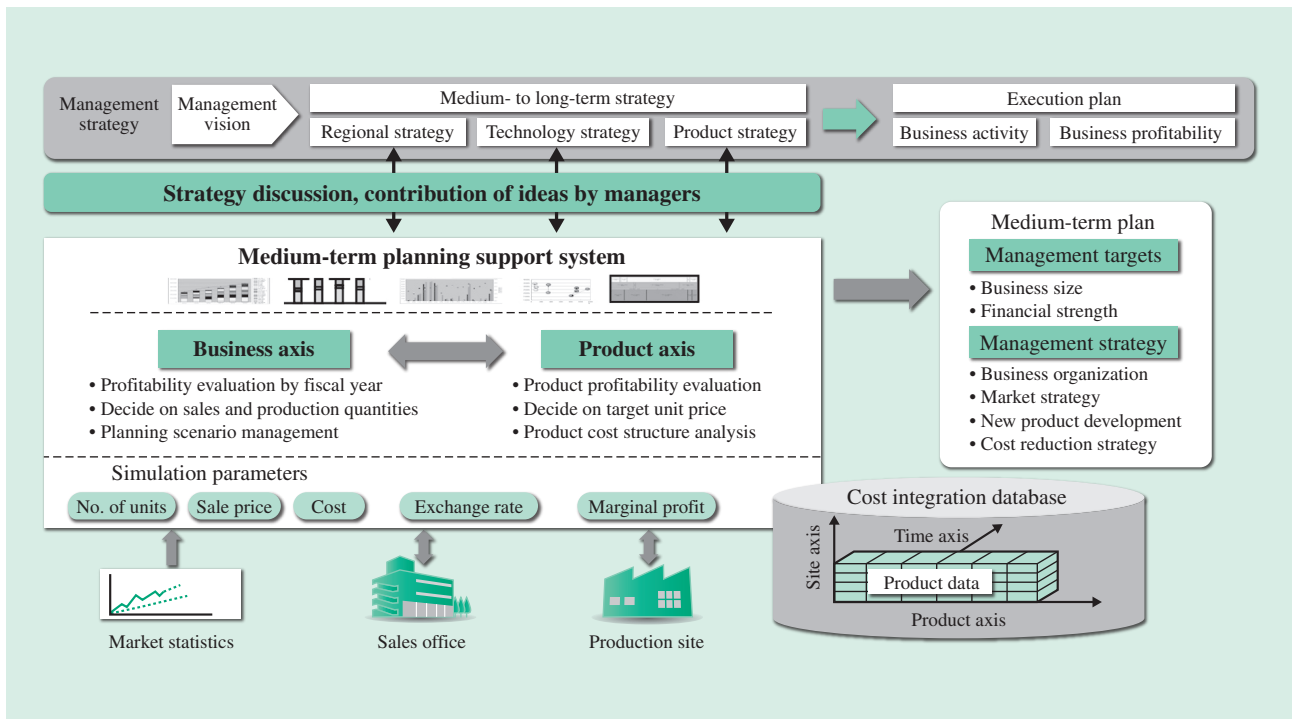


Fig. 4—Example Implementation of Medium-term Planning Support System. By consolidating the information required for medium-term planning and storing it in a database, planning times were shortened and the level of strategy discussion was raised by providing more diverse forms of information presentation.

CONCLUSIONS

This article has provided an overview, described the features, and presented case studies of a cost management solution that represents one way of contributing to managing a business so that it can thrive amid global competition. While the system is currently designed for use by discrete manufacturers, it will achieve use by process manufacturers in the future.

As globalization progresses, Hitachi is aiming for cost management solutions that can further enhance the competitiveness of Japanese manufacturers, increase their revenue, and assist with long-term growth.

REFERENCES

- (1) Current Situation and Challenges for Manufacturers, Manufacturing Industries Bureau, Ministry of Economy, Trade and Industry (Mar. 2014), http://www.meti.go.jp/committee/sankoushin/seizou/pdf/001_02_02.pdf in Japanese.
- (2) Support for Management Planning, Ministry of Economy, Trade and Industry (2005), http://www.meti.go.jp/report/downloadfiles/ji2005_01_5.pdf in Japanese.
- (3) Takayuki Fushimi, "Manual of Latest Costing Practices," TECHNO CONSULTANTS INC. (1995) in Japanese.

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