

### 5.3 Price Determination Criteria

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#### 5.3.1 Introduction

This section describes the principal price design standards that form the background for the "steplist for reasonable purchase price" and "how to use a price/cost breakdown table" from the viewpoint of purchasing control. The standards clarify the basis for determining prices. The materials which are used are supplied by the Japan Association of Purchasing Management and are commented on by the author.

#### 5.3.2 Pricing principles

To purchase the optimum quantity of a material at the optimum price with optimum timing is the principle of quantity, price, and timing. Therefore, material purchasing must be based on the purchase request of a material plan, be in accordance with a purchase standard, and be done at an optimum purchase price. To determine the optimum purchase price, suppliers are selected whose estimates are compared with each other as well as with reference and budget costs. Moreover, other factors, such as market conditions, must be taken into account. It is also essential to make a purchasing contract.

(1) Since the optimum purchase price varies according to the moment of evaluation, the price is decided by the following formula:

$$\text{Optimum purchase price} = \{\text{Minimum standard price}\} \pm \text{the overall adjustment factor}$$

Therefore, the person in charge of purchasing decides an optimum purchase price by finding or confirming the minimum purchase price at each time point, and considering the overall adjustment factors. The

overall adjustment factors are one or more of the factors described in the purchase price policy in the next subsection, 5.3.3.

(2) The minimum standard price is based on the following factors:

estimate conditions;  
the technical requirements, such as standard and quality assurance conditions, shown at evaluation;  
cost standard (standard man-hours based on a certain technical standard and material cost standard);  
and  
the lowest price among similar products

### **5.3.3 Purchase price policy and the overall adjustment factors for the policy**

#### **5.5.3.a Overall adjustment factors explained in this subsection**

Purchasing price policy is the single or combined policy established by the purchasing department of the company to determine reasonable prices according to the principle for purchasing budget preparation and purchasing. The overall adjustment factor(s) taken into account as a single factor, or weighted and combined factors, are meant to lead the buyer's and seller's policies to the final agreement on reasonable prices. This subsection describes the following items in the purchase price policies and the overall adjustment factors:

- (1) Types of price
- (2) Viewpoints required for purchase price policies
- (3) Purchase price patterns and factors to change them
- (4) Purchase market investigation
- (5) Technical purchasing ability

#### **5.3.3.b Other adjustment factors**

Other than the above, there are the following adjustment factors:

- (1) Operation rate
- (2) Actual GNP growth rate (See note)
- (3) Nominal GNP growth rate (See note)
- (4) Rate of increase in labor costs and prices

(Note) These increase scales are effective in detecting any abnormal changes in price because the scales become linear when converted to logarithmic scales, such as in land prices.

### 5.3.4 Types of prices

Prices can be classified from various angles. Any price can be called by a different name when different viewpoints are taken. The following introduces various names under which to categorize the ways of determining prices.

#### 5.3.4.a From the standpoint of cost

- (1) Stratified price
- (2) Expense plus profit price
- (3) Calculated price
- (4) Specific price (when purchased from multiple companies)
- (5) Cost plus profit price
- (6) Expended lost result indemnifying price
- (7) Planned price

#### 5.3.4.b From the standpoint of contract

- (1) Compromised price
- (2) Agreed price
- (3) Technology price
- (4) Contract price
- (5) Bulk demand price
- (6) Provisional price
- (7) Approximate price
- (8) Appropriate price
- (9) Fixed price
- (10) Traditional price
- (11) Previous price
- (12) Bid
- (13) Proposed price
- (14) Defense Agency price

- (15) Development price
- (16) Reviewed price
- (17) Conventional price

#### 5.3.4.c From the standpoint of a free market

- (1) Free price
- (2) Market price
- (3) List price
- (4) Net price
- (5) O.E.M. price
- (6) Official price
- (7) Custom price
- (8) Previous price
- (9) Contract price
- (10) Acquired price
- (11) Domestic price
- (12) International price
- (13) Fixed price
- (14) Bid
- (15) Competition price
- (16) Supply price
- (17) Demand price

#### 5.3.4.d From the standpoint of control

- (1) Controlled price
- (2) Official price
- (3) Agreed price
- (4) Discrimination price
- (5) Fixed price
- (6) Calculated price
- (7) Cost result indemnifying price
- (8) Defense Agency price

#### 5.3.4.e From the standpoint of monopoly

- (1) Monopoly price
- (2) Oligopoly price
- (3) One-sided decision price
- (4) Historical price
- (5) Natural law price

#### 5.3.4.f From the standpoint of domestic protection

- (1) Official price
- (2) Controlled price
- (3) Negotiated price
- (4) Contract price
- (5) Promotion price
- (6) Expenditure result cost indemnifying price
- (7) Specific price
- (8) Dual price
- (9) Previous price
- (10) Existing price

#### 5.3.4.g From the standpoint of calculation technology

- (1) Approximate price
- (2) Planned price
- (3) Budget price
- (4) Previous price
- (5) Calculated cost price
- (6) Fixed price
- (7) No profit price
- (8) Learning curve price
- (9) Cost standard reference price

#### 5.3.5 Viewpoints required for a purchase price policy

In the previous subsection, prices were classified by name. This subsection introduces the viewpoints for politically considering each of the strata constituting a price.

When a price is determined, the following viewpoints have to be taken into account as occasion

demands.

(1) To keep and improve the plant rate of operation

Actions to minimize an allocated fixed cost per unit by eliminating idle facilities and keeping full operation

(2) Appropriate quality

To keep quality in compliance with technical requirements

(3) Appropriate timing

Keep appropriate timing of delivery, reasonable price with appropriate evaluation of time and the evaluation time, deadline, and technical requirements (See the steplist for a reasonable purchase price)

(4) Compensation of proportional cost at minimum level

To keep minimum plant operation cost by compensating only proportional cost even at the sacrifice of the fixed cost, if necessary

(5) Tradition of technology

To keep the quality and the tradition of technology in wartime by taking on a one-company or two-company policy.

(6) Priority given to technology

Emphasizes on developmental and production technologies, and to owning specific facilities.

(7) Solvency

Not placing a strong emphasis on discounting by bulk purchasing, but confirming the relation between the solvency of each purchaser, and the bulk purchasing and possibility for products to become outdated during long-term storage.

(8) Replace-ability

Examination of whether a currently used product can be replaced with other products, and whether there is a way to improve it

(9) Maintenance of market position

Maintaining the current market position by taking several measures.

### 5.3.6 Purchase price patterns and the factors to change them

The types of purchase prices and the viewpoints about the STRATA in each price were described in the previous subsections. This subsection describes what kinds of patterns are used to combine the viewpoints to determine a purchase price. The pattern to combine them depends on the adjusted steplist for a reasonable purchase price and the situation of each project.

## (1) Active price type

### Price determination by cost planning

The profit plan of a company includes the plans of both profit earnings and costs. A cost plan is made by considering a given market and the sales conditions, expenses, and prices. A purchase policy is decided on the basis of the cost plan, and the pattern of a component purchase price from a vendor must be decided as a part of that policy.

Therefore, to achieve a flexible price policy required by top management, such as the determination of active sales price and the release of a new product, it is necessary to establish a purchase policy and a purchase price plan based on the policy for each project.

### Initiative price determination

This type of price determination takes advantage of the dominant position of the purchaser. As in , a purchase price is determined so that it complies with the policy and plan of the purchasing department. It is necessary to determine the base of minimum profit and cost to survive (naked cost) or lowest reference price for this type of price determination.

## (2) Passive price types

### Pattern of an auto-passive price restricted by the market and its conditions

(3) Supply-demand variation price

(4) Monopoly price

(5) Competition price

(6) Controlled price

(7) Free competition price

(8) Incentive price

(9) Cost compensating price (appropriate profit and compensating price )

When this purchase price pattern is used, it is necessary to maintain a system in which expenses generated by insufficient control are minimized and other factors are not confused with actual expenses.

### 5.3.7 Purchase market investigation

To systematically perform a purchase market investigation and survey, a purchase manager decides on

the policies concerning the following points every term, and reports and accumulates purchase results so that they help establish subsequent purchase policies, and performs purchase activities.

(1) The items to be investigated or surveyed

The items are selected from important items.

(2) Appointment of person

At least 2 persons are appointed: one must be able to understand man-hours by looking at the plant and process at the site (genba); and the other is a coordinator.

(3) Scope of the research

Domestic and overseas trends in general economic conditions

Because trends are also investigated in sales market research, it is best to do joint research with the sales department, or obtain necessary materials from the control and planning departments, and arrange them in a form fitting the purpose.

Trends in the same product industry.

Production and consumption amounts, and price trends are investigated.

Trends in industries with similar products

The following are investigated and put together:

A. Trends of companies with similar products

B. Alternative product trends

C. Trends of technologically new products

Investigation of distribution process

The following are put together. Special attention is paid to the traditional results and difference from the previous year.

A. Distribution organization trends

B. Customer trends

C. Price statistics trends

D. Transportation trends

E. Packaging-style and method trends

### 5.3.8 Technical purchasing ability

The purchasing department has to have technical purchasing abilities. They include purchase policy, and planning ability, which is the ability to purchase things at reasonable prices compatible with the purchase budget, without compromising "purchase principles." They also include the ability to reduce prices on the basis of sufficient engineering knowledge of the purchased product and skills, as well as the purchasing functions, which I will discuss next.

To obtain these abilities, it is necessary to have cooperation from other departments and that there be a person who is concurrently in charge of both purchasing and other department jobs.

The functions required for the purchasing department include:

- (1) Reasonable price policy planning for each project (through the combination of conventional purchasing and engineering abilities)
- (2) Preparation and use of abilities of a standard man-hour manual, standard purchase cost and standard materials cost
- (3) Estimate and calculation ability of material costs and product cost from materials including drawings, process figures and tables, and suppliers' price/cost breakdown tables
- (4) Analysis and evaluation ability of the adequacy of the price/cost breakdown tables for various materials
- (5) If necessary, reduction of purchase prices by providing reasonable methods for reducing costs and examples, thereby coordinating the improvement at the supplied plant rather than forcing discounts
- (6) Combining the abilities of the engineering, manufacturing, planning, and quality assurance departments in negotiating with suppliers to purchase quality and reliable products at desired prices  
(Application of the thinking for the steplist for a reasonable purchase price)

To be concrete, the purchasing department plays the following role in the application of the Design to Cost method described in Chapter 7 and the development of new products. When the engineering department finishes an outline (draft) of the specifications of a product, the purchase department asks the engineering department to release the tentatively fixed specifications, the tentatively fixed outline (draft), the estimate conditions (number of models, period, and expected rate with allowances), and the desired purchase prices to a supplier. Then, it requests the supplier to submit a DTC plan to produce the product at the desired price as well as additional ideas, technical conditions, requests, and opinions. Through these procedures, the purchase department makes the framework for mutual adjustment, and guides the adjustments of the contents and prices after the purchase has been decided.

### 5.3.9 Discussion

This chapter describes a standard for thinking about prices, which is the premise of the introduction to the Design to Cost method described in the next chapter. The information in this chapter provides the clues to making a final decision on prices.