Cost Estimating

Cost Estimating - Purpose

- The purpose of cost estimating is to find the cost of the manufacturing operations and to assist in setting the price for the product

Define

- Cost estimating may be defined as the process of determining the probable cost of the product before the start of manufacture

Features

- Important activity in engineering design and production
- It is forecasting the future cost
- Cost estimating & process planning are prominent activities in the manufacturing system
- It considers all the expenditures involved like engineering, administration, etc
- It requires high technical knowledge

Importance of cost estimating

- The only accurate estimating can enable the leaders to make vital decisions such as manufacturing, selling policies

Case1

- If job is over estimated,
  - The firm will not be able to compete with its competitors
- If the job is under estimated,
  - The firm will face huge financial loss

Aims of cost estimation

- To establish the selling price of a product, so as to ensure reasonable profit to the company
- To determine the most economical process
- To make/buy decisions
- To evaluate the alternate designs
- To prepare production budget
- TO initiate the cost reduction in existing facilities

Estimation types – used

- To fix the selling price of the product
- To help the contractors to submit the accurate tenders
- To forecast the progress of production and cost
- To set the various Standards

Components of Job Estimation

- Design cost
- Drafting cost
- R & D cost
- Material cost
- Labour cost
- Inspection cost
- Cost of tools, jigs, fixtures, etc.
- Overhead cost

1.Design cost

- Design cost of the product is estimated by ascertaining the expected time for the design of that product

Estimated Design cost = Estimated design time x salary of the designer per unit time

- Design time can be estimate on the basis of similar products already designed or on the basis of good judgement of designer
- If design done by outside agency, the total amount paid – gives the cost of design

2.Drafting cost

- When the design completed, the drawing will be prepared by the draftsman

Drafting cost = Estimated draft time x salary of the draftsman per unit time

3.Research & Development cost

- Considerable time and money has to be spent on research and developmental work
- The estimated cost and time on it are decided by the judgement or the past experience

4.Material cost

- Following steps involved
  - Prepare the list of all materials required to manufacture the product
  - Estimate the weight of all the materials expected (the allowance for the material wastage, spoilage and scrap are also added)

Estimated materials cost = Estimated weight of each part x Estimated future price

  - Finally, the estimated cost of all the parts is added to get the total estimated material cost of the product

5.Labour cost

- Following steps involved
  - Toestimate the labour cost, the estimator should have the knowledge of various operations, machines, sequence, tools & labour to be used.

Labour cost = Estimated labour time needed to the product x
Cost of the labour per hour

6.Inspection cost

- During this stage, the estimator should consider the cost of inspection equipments, gauges and wages to the inspectors

7. Cost of tools, jigs, fixtures, etc.

- During this stage, includes the estimated cost and maintenance charges for the tools, jigs, fixtures, die etc. required for production
- It considers their present prices, market trend and the number of times a particular tool can be used during its life time

$$Total\ cost\ per\ unit\ produced = \frac{\text{Estimated cost}}{Number\ of\ jobs}$$

8. Overhead cost

- This can not be charged directly
- All expenses other than direct cost are known as overhead cost or Indirect expenses, ex:- Administrative expenses, selling and distribution expenses, etc.
- It can be estimated by referring the previous records

$$Total\ cost\ per\ unit\ produced = \frac{\text{Estimated cost}}{Number\ of\ jobs}$$

Cost estimating procedure

Step 1

- Study the cost estimation request thoroughly and understand

it completely Step 2

- Analyze the product and decide the requirements and specifications of the product

Step 3

- Prepare the list of all the parts of the product and their bill of

Materials Step 4

- Take make or buy decisions and prepare a separate list of parts to be purchased &manufactured

Step 5

- Estimate the materials cost for the parts to be manufactured in

the plant Step 6

- Determine the cost of the parts to be purchased from outside

Step 7

- Make a manufacturing process plan for the parts to be manufactured in the plant

Cost estimating procedure

Step 8

- Estimate the machining time for each operations listed in the manufacturing process plan

Step 9

- Determine the direct labour cost

Step 10

- Determine the prime cost by adding direct expenses, direct material cost, and direct labour cost

prime cost = direct expenses + direct material cost + direct labour cost

Step 11

- Estimate the factory overheads, which include all indirect expenditure incurred during production such as indirect material cost, indirect labour cost, depreciation and expenditure on maintenance of the plant, machinery, power, etc.

Step 12

- Estimate the administrative expenses

Cost estimating procedure

Step 13

- Estimate the selling and distribution expenses, which include packing and delievery charges, advertisement charges, etc.

Step 12

- Now calculate the total cost of the product Step 10

- Determine the prime cost by adding direct expenses, direct material cost, and direct labour cost

Total cost = Prime cost + Factory overheads + Administrative expenses + Selling and distribution expenses

Step 15

- Decide the profit and add the profit to the total cost to fix the selling price of the part

Selling price = Total cost + Profit

Step 16

- Finally estimate the time of delivery in consultation with the production and sales department

Estimate Form

Description

Date

Drawing No

Enquiry No

Lot size

Components

Customer

Estimated by

S.No.	Item of Expenditure	Total cost for the entire Lot	Cost/ Component
	Direct Material cost/Component		
1	1		
	2		
	3		
	Total		
	Labour cost/component 1		
2	2		
	3		
3			
4			
5			
	selling and distribution expenses		
	1 Packing		
6	2 Advertising		
	3 Other alined expenses Total		
7	Total cost/component		
8	Profit Usually as a% of total cost / component		
9	Total (selling price / component)		

Costing

- Costing is the determination of an actual cost of a component after adding different expenses incurred in various departments

Costing - Definition

- Costing may be defined as a systematic procedure for recording accurately every item of expenditure incurred on the manufacture of a product by different sections of any manufacturing concern

Aims of Costing

Cost determination:-

- *To determine the actual cost of each cost of each component and cost of the final product*

For fixing selling price:-

- *To provide information to ascertain the selling price of the product*

Cost control:-

- *To analyze the expenses incurred in production, so that control can be kept over them*

Comparison with estimate:-

- *To compare the actual cost with the estimated cost to know whether the estimate had been realistic or not*

Make or buy decisions:-

- *To decide which of the components to be manufactured and which parts to be purchased from outside*

Aims of Costing

Wastage reduction:-

- *To help in detecting the undesirable wastages and expenses, so that corrective measures can be taken*

Suggest changes in design:-

- *To provide changes, if the cost of part is higher as compared to the competing product*

Profit & Loss:-

- *To locate the reasons for the increase or decrease in profit or loss of a company*

Fixing the discount:-

- *To help in determining the discount on catalogue or market price of the product*

Pricing policy:-

- *To help in formulating the policies for changing/price of the product*

Aims of Costing

Budject preparation:-

- *To the enterprise to prepare its budget*

Prepare quotations/tenders:-

- *To facilitate preparation of estimate for submitting quotations/tenders*

Output targets:-

- *To help in regulating, from time to time, the production of a job so that the enterprise can earn more profits*

Legal provisions:-

- *To meet certain legal and government regulations, cost data is necessary*

Purchasing new one:-

- *To provide information for economic consideration for purchasing new plants/machines, etc.*

Methods of Costing

Job/order costing:-

- *Find the cost of the each individual job/contract*
- *The total cost of each order is obtained from the daily cost sheet Example:- ship building, machine fabrication, building, etc.*

Batch costing:-

- *Batch costing is a form of job costing*
- *Instead of costing each components, each batch of components is taken*

Example:- automobile switches, Plastic components, etc.

Process costing :-

- *Employed for a product which involved a number of distinct process performed in a definite sequence*
- *This method indicates the cost of a product at different stages as it passes through various operations*
- *Example:- Oil refining, chemical, cement, paint, paper making*

Methods of Costing

Departmental costing:-

- *This method is adopted in determining the cost of the cost of the output of each department separately*
- *In this method, the actual expenditure of each department on various components is entered on a separate sheet*

Example:- steel industry, automobile industry, etc.

Operating costing:-

- *This method is used in firms providing utility services Example:-*

water service, electricity board, transport services, etc.

Unit costing :-

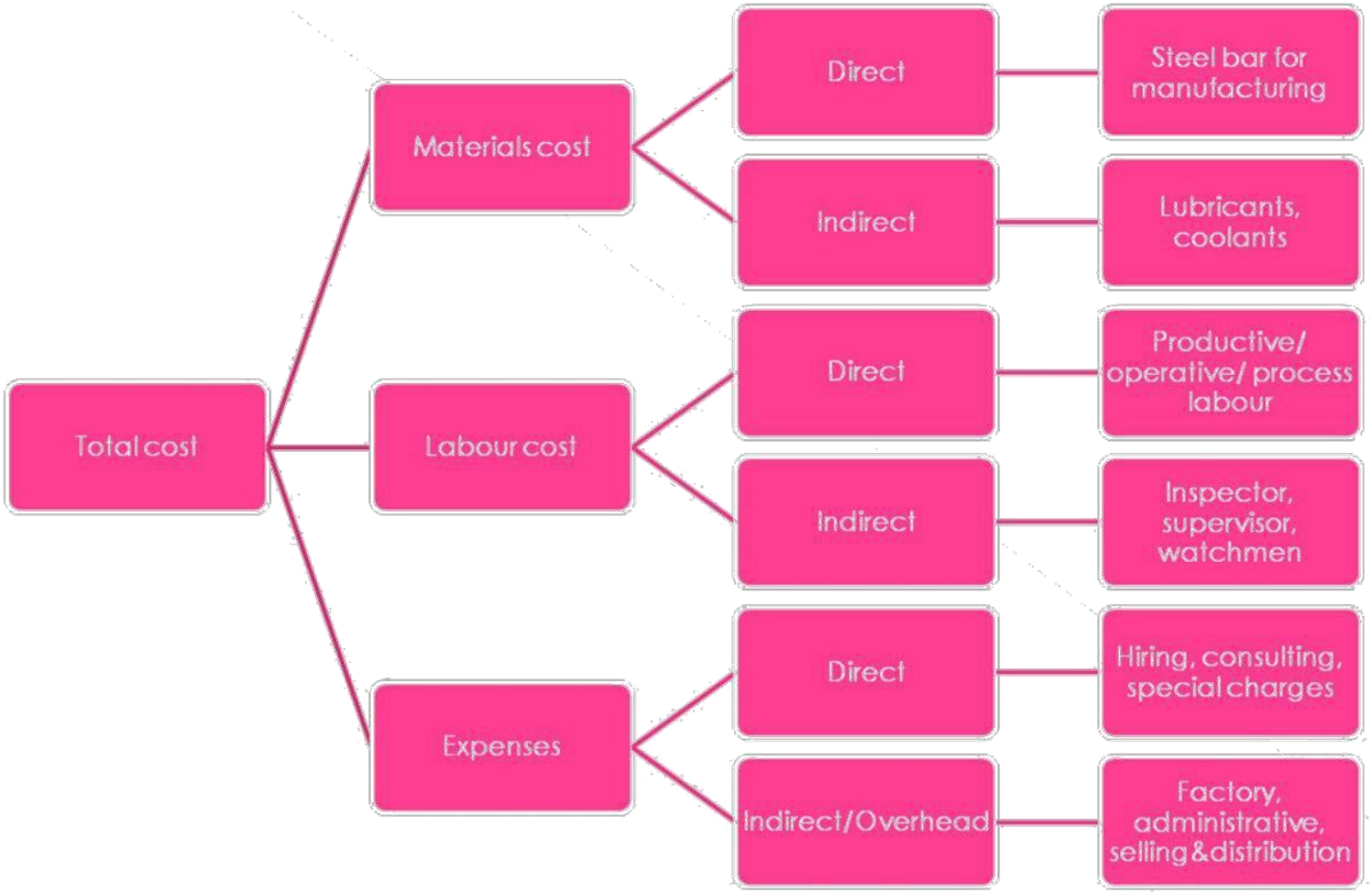
- *This method is adopted by the firms, which supply a uniform product rather than a variety of products*

Example:- mines, quarries, etc.

Multiple costing :-

- *This method is adopted where manufacture of standardized products having no relation to one another in cost, quality and process, etc.*

Elements of cost



Estimation Vs Costing

S.no.	Particular	Estimating	Costing
1	Nature of cost	Probable cost	Actual cost
2	Personnel	High Technical knowledge	Knowledge of accounts
3	Process duration	Before the production	Starts with issue of order Ends with product dispatched on sale
4	Organisation department	Planning Department	Accounting department