

Standard cost is an estimated cost determined by the company for the production of the goods and services or for performing an operation under normal circumstances and are derived by the company from the historical analysis of the data or from the time and the motion studies. Such costs pre-determined by the company are used as the [target costs by the company](#) for comparing it with actual costs, and the difference will be the variance.

Advantages

- These costs are used by the management of the company for planning the process of future production and ways to increase the company's efficiencies.
- As the standard cost is calculated using the different statistical measures and the experiences of the management, so with the help of this measure management can innovate different new ways for producing the products which do not require the same type of the procedures and thereby reducing the cost of the company.
- It is used by the management in order to determine the reasonability of the actual costs of the period. Difference between the standard and the actual cost helps the management in knowing how close actual expenses matched with it expected to be and deciding the future course of action. For example, if the actual cost of the material is much higher than the management may investigate the reason for the excess cost.

Limitations

- The task of setting such cost of the production is difficult one as it requires a high degree of the technical skill of the person responsible for setting the same. Therefore it requires lots of effort and cost. Also, the conditions in any business enterprise keep on changing due to which standards to be have revised only on a timely basis otherwise it will not be worth any more.
- The situations that would prevail in the future in any company or industry is not certain and different factors affect the company which makes it difficult to make the correct estimation of the standard cost of the production of goods or of provision of the services by a company as while calculating such costs, past experiences, as well as the future expense forecast, is required.
- It is not possible to fix these costs in every type of operation as such a system cannot be used in the industries that have no production of any of the standard products.

Standard Costing System

In [accounting](#), a [standard costing](#) system is a tool for planning [budgets](#), managing and controlling [costs](#), and evaluating [cost management performance](#).

A standard [costing system](#) involves estimating the required costs of a [production](#) process. But before the start of the [accounting](#) period, determine the [standards](#) and set regarding the amount and cost of [direct materials](#) required for the [production](#) process and the amount and pay rate of [direct labor](#) required for the [production](#) process. In addition, these [standards](#) are used to plan a [budget](#) for the [production](#) process.

At the end of the accounting period, use the actual amounts and costs of direct material. Then utilize the actual amounts and pay rates of direct labor to compare it to the previously set standards. When you compare the actual costs to the standard costs and examine the variances between them, it allows managers to look for ways to improve cost control, cost management, and operational efficiency.

Advantages and Disadvantages of Standard Costing

There are both advantages and disadvantages to using a standard costingsystem. The primary advantages to using a standard costingsystem are that it can be used for product costing, for controlling costs, and for decision-making purposes.

Whereas the disadvantages include that implementing a standard costing system can be time consuming, labor intensive, and expensive. If the cost structure of the production process changes, then update the standards.

Problem 1:

Given for a factory:

Normal number of workers 100

Number of hours paid for in a week 80

Standard Rate of wages per hour Rs.1.60

Standard Output of the department

per hour taking into account normal idle time 40 units

In the first week of January 2003 it was ascertained that 2,000 units were produced despite 20% idle time due to power failure and actual rate of wages was Rs.1.80 per hour. Calculate Labour Variances.

Solution

Standard hours for actual output	=	$\frac{2,000 \text{ units} \times 100}{40 \text{ units}}$	=	5,000 hours
Standard Labour Cost	=	5,000 hours	×	Rs. 1.60 = Rs. 8,000
Actual Hours	=	100 × 80	=	8,000
Actual Labour Cost	=	8,000 × 1.80	=	Rs. 14,400
Idle Hours	=	8,000 hrs. × $\frac{20}{100}$	=	1,600.
Actual Hours for Efficiency Variance	=	8,000 - 1,600	=	6,400 hrs.

Analysis of Labour Cost Variance

Labour Cost Variance	= (SLC - ALC)	Rs.
	= Rs. 8,000 - Rs. 14,400	6,400 (A)
<i>Explained by :</i>		
(i) Labour Rate Variance		
(SR - AR) × AH.	= (Rs. 1.60 - Rs. 1.80) 8,000	
	= (-0.20) × 8,000	1,600 (A)
(ii) Labour Efficiency Variance	= (SH - AH) × SR	
	= (5,000 - 6,400) × Rs. 1.60	2,240 (A)
(iii) Idle Time Variance = Idle Hours × SR	= 1,600 × Rs. 1.60	2,560 (A)

Problem 2:

From the following data prepare a unit cost statement showing the prime cost of product A and B together with analysis of variances:

		<i>Product A</i>	<i>Product B</i>
Material :	Standard	600 kgs. @ Rs. 5.00	90 kgs. @ Rs. 3.00
	Actual	580 kgs. @ Rs. 5.50	100 kgs. @ Rs. 2.50
Labour :	Labour	80 hours @ Rs. 2.00	16 hours @ Rs. 2.80
	Actual	92 hours @ Rs. 1.75	14 hours @ Rs. 2.60

[Adapted—I.C.W.A. (Inter), June 1998]

Solution

Variance	<i>Product A</i>	<i>Product B</i>
(1) Material Price Variance	$= AQ \times (SP - AQ)$ $= 580 \times (Rs. 5 - Rs. 5.50)$ $= 580 \times 0.50$ $= Rs. 290 (A)$	$AQ \times (SP - AP)$ $= 100 \times (3 - 2.80)$ $= 100 \times 0.20$ $= Rs. 20 (F)$
(2) Material Usage Variance	$= (SQ - AQ) \times SP$ $(600 \text{ kgs.} - 580 \text{ kgs.}) \times 5$ $= (20) \times 5$ $= 100 (F)$	$(SQ - AQ) \times SP$ $(90 - 100) \times Rs. 3$ $= Rs. 30 (A)$
(3) Material Cost Variance	(Price Variance - Usage Variance) $Rs. 290 (A) - Rs. 100 (F)$ $= Rs. 190 (A)$	(Price Variance - Usage Variance) $Rs. 20 (F) - 30 (A)$ $= Rs. 10 (A)$
(4) Labour Rate Variance	$(SR - AR) \times AH$ $(Rs. 2 - Rs. 1.75) \times 92$ $= Rs. 23.00 (F)$	$(SR - AR) \times AH$ $(Rs. 2.80 - Rs. 2.60) \times 14$ $= 0.20 \times 14 \text{ hours}$ $= Rs. 2.80 (F)$
(5) Labour Efficiency Variance	$(SH - AH) \times SR$ $(80 \text{ hrs.} - 92 \text{ hrs.}) \times Rs. 2$ $= Rs. 24 (A)$	$(SH - AH) \times SR$ $(16 - 14) \times 2.8$ $= Rs. 5.60 (F)$
(6) Labour Cost Variance	Labour Rate Variance - Labour Efficiency Variance $Rs. 23 (F) - Rs. 24 (A)$ $= Re. 1.00 (A)$	Labour Rate Variance + Labour Efficiency Variance $Rs. 2.80 (F) + Rs. 5.60 (F)$ $= Rs. 8.40 (F)$

Cost Statement

	<i>Product A</i>	<i>Product B</i>
	Rs.	Rs.
Material :	600 kgs. × Rs. 5.00 = 3,000.00	90 kgs. × Rs. 3.00 = 270.00
Labour :	80 hrs. × Rs. 2.00 = 160.00	16 hours × Rs. 2.80 = 44.80
(A) Standard Prime Cost	3,160.00	314.80
Material :	580 kgs. × Rs. 5.50 = 3,190	100 kgs. × Rs. 2.80 = 280.00
Labour :	92 hours × Rs. 1.75 = 161	14 hours × Rs. 2.60 = 36.40
(B) Actual Prime Cost	3,351	316.40
Total Cost Variance = Rs. 3,160 - Rs. 3,351 = Rs. 191.00 (A)		Rs. 314.80 - Rs. 316.40 = Rs. 1.60 (A)

Problem 3:

A gang of workers normally consists of 30 men, 15 women and 10 boys. They are paid at standard hourly rates as under:

	Re.
Men	0.80
Women	0.60
Boys	0.40

In a normal working week of 40 hours, the gang is expected to produce 2,000 units of output. During the week ending 31st December, 2002, the gang consisted of 40 men, 10 women and 5 boys. The actual wages paid were @ Re 0.70, Re 0.65 and Re 0.30 respectively. 4 hours were lost due to abnormal idle time and 1,600 units were produced.

Calculate:

- (i) Wage Variance;
- (ii) Wage Rate Variance;
- (iii) Labour Efficiency Variance;
- (iv) Labour Mix Variance; and
- (v) Labour Idle Time Variance.

Solution

Workers	Standard			Actual		
	Hours	Rate (Rs.)	Amount (Rs.)	Hours	Rate (Rs.)	Amount (Rs.)
Men	1,200	0.80	960	1,600	0.70	1,120
Women	600	0.60	360	400	0.65	260
Boys	400	0.40	160	200	0.30	60
	2,200		1,480	2,200		1,440

1. **Labour Cost Variance** = (Actual Labour Cost – St. Labour Cost for Actual Output)

$$= \text{Rs. } 1,440 - \left(\frac{1,480}{2,000} \times 1,600 \right) = \text{Rs. } 256 \text{ (A)}$$

2. **Wage Rate Variance** = Actual Hours paid × (Standard Rate – Actual Rate)

		Rs.
Men	= 1,600 × (0.80 – 0.70) =	160 (F)
Women	= 400 × (0.60 – 0.65) =	20 (A)
Boys	= 200 × (0.30 – 0.40) =	20 (A)

3. **Labour Efficiency Variance** = St. Rate × (St. Hours – Actual Hours)

Men = $0.80 \times \left[\left(1,600 \times \frac{1,200}{2,000} \right) - 1,600 \right]$
= $0.80 \times (960 - 1,600) = \text{Rs. } 512 \text{ (A)}$

Women = $0.60 \times \left[\left(\frac{600}{2,000} \times 1,600 \right) - 400 \right]$
= $0.60 \times (480 - 400) = 48 \text{ (F)}$

Boys = $0.40 \times \left(\frac{400}{2,000} \times 1,600 \right) - 200$
= $0.40 \times (320 - 200) = \text{Rs. } 48 \text{ (F)}$

4. **Labour Mix Variance** = St. Rate × (Actual time worked – Revised St. time)

Men = $\text{Re. } 0.80 \times \left(1,440 - \frac{1,980 \times 1,200}{2,220} \right)$
= $0.80 \times (1,440 - 1,080) = \text{Rs. } 288 \text{ (A)}$

Problem 4:

Calculate labour variances from the following data:

Gross direct wages Rs.36,000

Standard hours produced 2,000

Standard rate per hour Rs.15

Actual hours paid – 1,800 hours out of which hours not worked (abnormal idle time) are 50

Solution

(i) **Labour Cost Variance** = Standard cost of labour – Actual cost of labour
= $(2,000 \times \text{Rs. } 15) - (1,800 \times 20)$
= $\text{Rs. } 30,000 - \text{Rs. } 36,000 = \text{Rs. } 6,000 \text{ (A)}$

(ii) **Labour Rate Variance** = Actual Time × (St. Rate – Actual Rate)
= $1,800 \times (15 - 20) = \text{Rs. } 9,000 \text{ (A)}$

(iii) **Labour Efficiency Variance** = Standard Rate × (ST – AT)
= $\text{Rs. } 15 \times (2,000 - 1,750) = \text{Rs. } 3,750 \text{ (F)}$

(iv) **Idle Time Variance** = Abnormal Time × St. Rate
= $50 \times \text{Rs. } 15 = 750 \text{ (A)}$

hours.

Problem 5:

From the following particulars calculate variable overhead expenditure variance:

Actual variable overhead expense	Rs. 14,250
Budgeted variable overhead expense	Rs. 17,000
Actual level of production	8,000 Standard hours
Normal capacity	10,000 Standard hours

[Adapted—I.C.W.A. (Inter)]

Solution

Variable Overhead Expenditure Variance = SC - AC

Standard Variable Overhead Expense = Standard rate × Actual output

$$\text{Standard rate} = \frac{\text{Rs. 17,000}}{10,000} = \text{Rs. 1.70.}$$

So, Standard Variable Overhead Cost = 8,000 × Rs. 1.70 = Rs. 13,600

$$\begin{aligned} \therefore \text{Variable Overhead Cost Variance} &= \text{SC} - \text{AC} = \text{Rs. 13,600} - \text{Rs. 14,250} \\ &= 650 \text{ (Adverse)} \end{aligned}$$

Problem 6:

The standard cost card of a manufacturing concern includes the following particulars:

Variable overhead per unit – 2 hours @ 0-30 p. per hour = 0-60 p.

Actual operating hours 8,000 hours

Actual variable overhead expenses Rs.2,600

Actual units produced 4,850

Calculate necessary cost variances.

Solution

We shall have to find out standard quantity and actual rate

$$\text{Standard Quantity} = \frac{\text{Actual operating hours}}{\text{Standard hours per unit}} = \frac{8,000}{2} = 4,000 \text{ units}$$

$$\text{Actual Rate} = \frac{\text{Actual overhead cost}}{\text{Standard hrs. worked}} = \frac{\text{Rs. 2,600}}{4,000} = 0.65 \text{ p.}$$

- (i) **Variable overhead cost variance** = SC - AC
Standard Cost = Actual Qnt. × S.R. = 4,850 × 0.60 p = Rs. 2,910
Variable overhead cost variance = Rs. 2,910 - Rs. 2,600 = 310 (F)
- (ii) **Variable overhead expenses variance** = Standard unit × (SR - AR)
= 4,000 × (0.60 - 0.65) = Rs. 200 (A)
- (iii) **Variable overhead efficiency variance** = SR × (AQ - SQ)
= 0.60 p × (4,850 - 4,000) = Rs. 510 (F)

Problem 7:

From the following particulars compute:

(a) Material cost variance	
(b) Material price variance	
(c) Material usage variance	
Quantity of materials purchased	3,000 units
Value of materials purchased	Rs. 9,000
Standard quantity of materials Required per ton of output	30 units
Standard rate of material	Rs. 2.50 per unit
Opening stock of materials	Nil
Closing stock of materials	500 units
Output during the year	80 tons

[Delhi U. B.Com. (Hons.)]

Solution

- (a) Quantity of materials consumed : $3,000 \text{ units} - 500 \text{ units} = 2,500 \text{ units}$
- (b) Actual cost of materials per unit = $\frac{\text{Rs. } 9,000}{3,000} = \text{Rs. } 3$
- (c) Standard material required per ton 30 units
- (d) Standard material cost = $30 \times 80 \times \text{Rs. } 2.50 = 2,400 \times 2.50 = \text{Rs. } 6,000$
- Actual cost = $2,500 \times \text{Rs. } 3 = \text{Rs. } 7,500$.
- (i) **Material Cost Variance** = $SC - AC$
= $\text{Rs. } 6,000 - \text{Rs. } 7,500 = \text{Rs. } 1,500 \text{ (A)}$
- (ii) **Material Price Variance** = $AQ \times (SR - AR)$
= $2,500 \times (2.50 - 3.00) = \text{Rs. } 1,250 \text{ (A)}$
- (iii) **Material Usage Variance** = $SR \times (SQ - AQ)$
= $\text{Rs. } 2.50 \times (2,400 - 2,500)$
= $\text{Rs. } 2.50 \times (-100) = 250 \text{ (A)}$

Reconciliation

$$\text{MCV} = \text{MPV} + \text{MUV} = 1,500 \text{ (A)} = 1,250 \text{ (A)} + 250 \text{ (A)}$$