

Standard Costing & Responsibility Accounting

Definition of standard costing:

It is a method of costing by which standard costs are employed. According to ICMA, London, Standard Costing is “the preparation and use of standard costs, their comparison with actual cost and the analysis of variances to their causes and points of incidence.”

Standard Costing involves:

- (i) Ascertainment and use of standard costs;
- (ii) Recording the actual costs;
- (iii) Comparison of actual costs with standard costs in order to find out the variance;
- (iv) Analysis of variance; and
- (v) After analysing the variance, appropriate action will be taken where and whenever necessary.

Standard Costing and Budgetary Control:

Similarities:

Standard Costing and Budgetary Control are two important techniques or instruments in Cost and Management Accounting used for cost control and cost reduction. There is a contradiction between the two — whether they are inter-related or inter-dependent to each other — whether they are complimentary or substitute to each other. The following are the similarities found between the techniques of standard costing and budgetary control:

- (i) Both techniques are used for cost control purposes,
- (ii) Both techniques are operated on pre-determined or estimated basis,
- (iii) Both measure the actual performances,
- (iv) Both systems take corrective action, as and when necessary.

Differences:

Standard Costing	Budgetary Control
It is related to only Cost and Management Accounting.	It is related to the Financial Accounting besides Cost and Management Accounting.
Standard costing is more intensive in nature.	Budgetary control is more extensive in nature.
In standard costing variances are analysed element-wise, i.e., for material, labour, fixed overhead, variable overhead, sales etc.	In budgetary control, variances are analysed function-wise, i.e. for departments, sub-departments separately or entire concern as a whole.
Standard Costing is not generally used for the purpose of forecasting.	Budgeting is used for the purpose of forecasting.
Standard costing requires standardisation of products.	Budgetary control does not necessarily involve standardisation of products.
Standard costing cannot be operated in parts or elements. Variances are analysed element-wise, i.e., for material, labour, fixed overhead, variable overhead, sales etc.	Budgetary control can be operated in parts, sections or departments, depending upon the attitude of the management. It can easily be applied partly without preparation of all the budgets at a time.
It is applied mainly to the manufacturing concerns.	Budgeting is concerned with all types of activities of the enterprise.
Standard cost is a unit concept.	Budgeted cost is a total concept.
Standard costing may be considered as supplementary to the budgetary control.	It can be used successfully without the use of standard costing.
Standard costing tries to push the business towards further progress.	Budgeting tries to pull the business out of probable difficulties.
Standards are revised only when they are inappropriate for current operating conditions.	Budgets are periodically revised, on average annually.

Utilities or Importance or Advantages of standard costing:

The advantages or importance of standard costing are as follows:

Providing information: Standard costing helps the management by providing sufficient and valuable information for different management functions — such as planning, organising, direction, co-ordination and control.

Detection of efficient and inefficient areas of a concern: It helps to measure the actual efficiency of performance at all levels of production, sales and management. In other words, it helps in rewarding the efficient factors and improving or punishing the inefficient factors.

Creates better co-operation and co-ordination: This technique helps to create better co-

operation and co-ordination at all functional levels and thereby motivating the employees to achieve the standard.

Optimal use of resources and minimum loss of materials: It involves effective and optimum utilisation of materials, labour (workers), machines, fuel and other factors of production, as well as it helps to reduce wastages, losses, pilferage, leakages, etc. of raw materials.

Limitations of standard costing:

In spite of huge advantages of this technique, it suffers from a number of limitations. The following are the main limitations of standard costing:

Expensive and time-consuming: It requires huge labour and time of a group of experts to set up all the requirements of standard costing. It also requires a high level of skill and expertise. Hence, small concerns may find it hard to establish the system.

Difficulty in set up a standard: Standard setting is a typical task which requires high technical skill, sound knowledge and vast experience. As a result it is very difficult to fix up perfectly ideal standard in practical cases. Otherwise the standard costing would not be successful.

Changing situation: The standards are set up on the assumptions of some specific conditions and under certain situations. In most cases, where rates, prices and methods change quickly, standards rapidly become out of date, as a result the standards would be irrelevant.

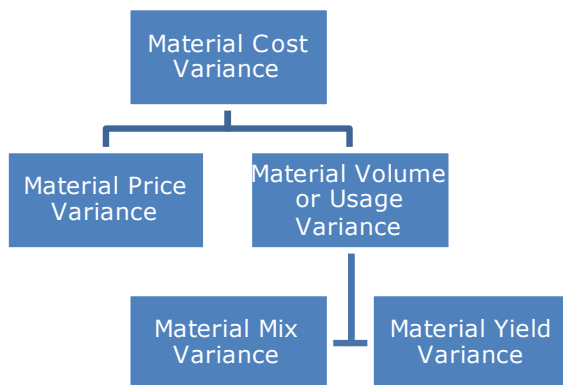
Definition of Variance Analysis:

ICMA, London, defined the variance analysis as "the process of computing the amount of and isolating the cause of variances between actual costs and standard costs". Variance analysis is an important technique used in standard costing for the purpose of cost control and cost reduction. The variance analysis helps the management to create responsibility properly and to identify the activities or areas of exceptions. Variances may be either favourable (F) or adverse (A), depending upon the situations. It is reasonable to view the variance as favourable when actual costs are less than standard costs, and to view the variance as adverse when actual costs surpass the standard. But it does not follow automatically that these terms

should be equated with good and bad. Such an assessment should be made only after the causes of the variance are known.

Material Cost Variance:

Material cost variance can be classified as follows:



For finding out the material cost variances, four steps are given below:

M1—Actual cost of material used (Actual quantity of materials used x Actual rate)

M2 — Standard cost of material used (Actual quantity of material used x Standard rate)

M3 —Standard cost of material used, if it had been used in the standard proportion

M4 —Standard material cost of output (Standard quantity of material required for the specified output x Standard rate)

Difference between **M1** and **M4** will be Material Cost Variance.

Difference between **M1** and **M2** will be Material Price Variance.

Difference between **M2** and **M4** will be Material Volume or Usage Variance.

Difference between **M2** and **M3** will be Material Mix Variance.

Difference between **M3** and **M4** will be Material Yield Variance.

Example :

The standard cost of a certain chemical mixture is as under:

45% of Material A at Rs. 20 per kg

55% of Material B at Rs. 30 per kg

A standard loss of 10% is expected in production. The following actual cost data is given for the period.

190 kg. Material A at a cost of Rs. 18 per kg

210 kg. Material B at a cost of Rs. 34 per kg

The weight produced is 360 kg.

Calculate: Material Price Variance, Material Mix Variance, Material Yield Variance, Material Usage Variance, Material Cost Variance.

Solution: **Calculation of Variances**

M1— Actual cost of material used:

Material A-190 kg x Rs. 18 = 3,420

Material B-210 kg x Rs. 34 = 7,140 Rs. 10,560

M2— Standard cost material used:

Material A-190 kg x Rs. 20 = 3,800

Material B-210 kg x Rs. 30 = 6,300 Rs.10,100

M3— Standard cost of material used, if it had been used in the standard proportion

$\frac{\text{Standard mix in kg.} \times \text{Weight in actual mix}}{\text{Total Standard Mix}} \times \text{Standard Rate}$

Weight of Std. mix actual mix of material per kg.

Material A = $\frac{45 \text{ kg.} \times 400 \text{ kg.} \times \text{Rs.} 20}{100 \text{ kg.}}$ = Rs.3,600

100 kg.

Material B = $\frac{55 \text{ kg.} \times 400 \text{ kg.} \times \text{Rs.} 30}{100 \text{ kg.}}$ = Rs.6,600

100 kg.

M4— Standard material cost of output, when input is 100 kg.

Standard Mix	Standard Rate	Standard Cost
45 kg.	Rs. 20	Rs. 900
<u>55 kg.</u>	Rs.30	Rs. <u>1,650</u>
100 kg.		2,550

Loss: 10% 10 kg. —

90 kg.

2,550

Standard cost is Rs. 2,550 for output of 90 kg.

Standard cost of actual output of 364 kg. will be $= \frac{\text{Rs.}2,550}{90 \text{ kg.}} \times 360 \text{ kg.} = \text{Rs.}10,200$

Material Price Variance = $M1 - M2 = \text{Rs.}10,560 - \text{Rs.}10,100 = \text{Rs.}460$ (A)

Material Mix Variance = $M2 - M3 = \text{Rs.}10,100 - \text{Rs.}10,200 = \text{Rs.}100$ (F)

Material Yield Variance = $M3 - M4 = \text{Rs.}10,200 - \text{Rs.}10,200 = \text{Nil}$

Material Usage Variance = $M2 - M4 = \text{Rs.}10,100 - \text{Rs.}10,200 = \text{Rs.}100$ (F)

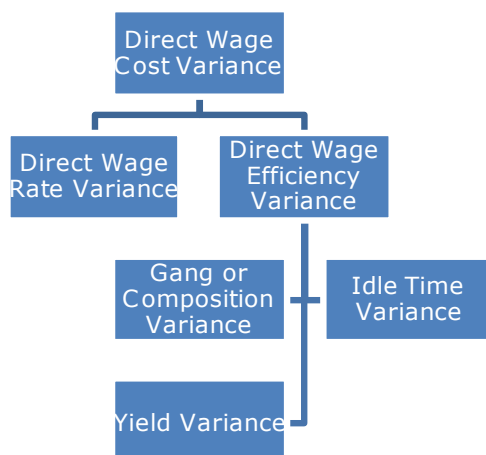
Material Cost Variance = $M1 - M4 = \text{Rs.}10,560 - \text{Rs.}10,200 = \text{Rs.}360$ (A)

Alternatively, Material Cost Variance = Material Price Variance + Material Usage Variance
 $= \text{Rs.}460$ (A) + $\text{Rs.}100$ (F) = $\text{Rs.}360$ (A)

Material Usage/Volume Variance = Material Mix Variance + Material Yield Variance
 $= \text{Rs.}100$ (F) + Nil = $\text{Rs.}100$ (F)

Direct Wage Variance

Direct wage variance can be classified as follows:



For finding out direct wage variances; five steps are given below:

L1—Actual payment made to workers for actual hours worked (Actual hours worked \times

Actual hourly wage rate)

L2 —Payment involved if the workers had been paid at standard rate (Actual hours worked \times Standard hourly wage rate)

L3 —Payment involved if workers had been used according to the proportion of standard gang, and payment had been made at standard rate.

L4 —Standard cost of labour hours utilised

L5 — Standard labour cost of output achieved (Standard labour cost per unit \times Actual production)

Difference between **L1** and **L2** will be Labour Rate Variance.

Difference between **L2** and **L3** will be Labour Mix/Gang Variance.

Difference between **L3** and **L4** will be Labour Idle Time Variance.

Difference between **L4** and **L5** will be Labour Yield Variance.

Difference between **L2** and **L5** will be Labour Efficiency Variance.

Difference between **L1** and **L5** will be Labour Cost Variance.

Example:

A gang of workers usually consists of 12 men, 8 women and 6 boys in a factory. They are paid at a standard hourly rate of Re. 1.25, Re. 0.90 and Re.0.75 respectively. In a normal working week of 50 hours the gang is expected to produce 1,000 units of output.

In a certain week, the gang consisted of 15 men, 6 women and 3 boys. Actual wages were paid at the rates of Rs.1.20, Re. 0.95, and Re. 0.65 respectively. Three hours were lost due to abnormal idle time and 950 units of output were produced.

Calculate various labour variances.

Solution. Computation of Labour Variances

L1 —Actual payment for actual hours worked		Rs.
Men	15 x 50 hrs.=750hrs. x Rs. 1.20	900
Women	6 x 50 hrs.=300hrs. x Re. 0.95	285
Boys	3 x 50 hrs.= <u>150hrs.</u> x Re. 0.65	<u>97.5</u>
	<u>1200hrs.</u>	<u>1282.5</u>

L2 —Actual hours worked at standard rate		Rs.
Men	15 x 50 hrs.=750hrs. x Rs. 1.25	937.5
Women	6 x 50 hrs.=300hrs. x Re. 0.90	270
Boys	3 x 50 hrs.= <u>150hrs.</u> x Re.0.75	<u>112.5</u>
	<u>1200hrs.</u>	<u>1320</u>

L3 — Payment involved, if the workers had been used according to the proportion of standard gang and the payment had been made at standard rate Rs.

Men	12 x 50hrs.= 600hrs. x Rs. 1.25	750
Women	8 x 50hrs.= 400hrs. x Re. 0.90	360
Boys	6 x50hrs. = <u>300hrs.</u> x Re. 0.75	<u>225</u>
	<u>1300hrs.</u>	<u>1335</u>

L4 —Standard labour cost of labour hours utilised Rs.

Men	12 x 47hrs.=564hrs. x Rs. 1.25	705
Women	8 x 47hrs.=376hrs. x Re. 0.90	338.4
Boys	6 x 47hrs.= <u>282hrs.</u> x Re. 0.75	<u>211.5</u>
	<u>1222hrs.</u>	<u>1254.9</u>

L5 —Standard Labour Cost of output achieved Rs.

Men	12 x 50hrs.xRs.1.25	750
Women	8 x 50hrs.x Re. 0.90	360
Boys	6 x50hrs.xRe.0.75	<u>225</u>
	Standard labour cost of 1000 unit	<u>1335</u>

Therefore, Standard labour cost of 950 units = (Rs.1335/1000u) x 950u=Rs.1268.25

Wage Rate Variance = L1—L2 = Rs.1282.5 —Rs.1320= Rs.37.5 (F)

Wage Gang Variance = L2—L3 = Rs.1320—Rs.1335 = Rs.15 (F)

Wage Idle Time Variance = L3—L4 = Rs.1335 —Rs.1254.90=Rs.80.10 (F)

Wage Yield Variance = L4—L5 = Rs.1254.90 —Rs.1335 = Rs.80.10 (A)

Wage Efficiency Variance = L2—L5 = Rs.1320 —Rs.1335=Rs.15 (F)

Wage Cost Variance = L1—L5 = Rs.1282.5 — Rs.1335=Rs.52.50 (F)

Alternatively,

Labour Cost Variance= Labour Rate Variance + Labour Efficiency Variance

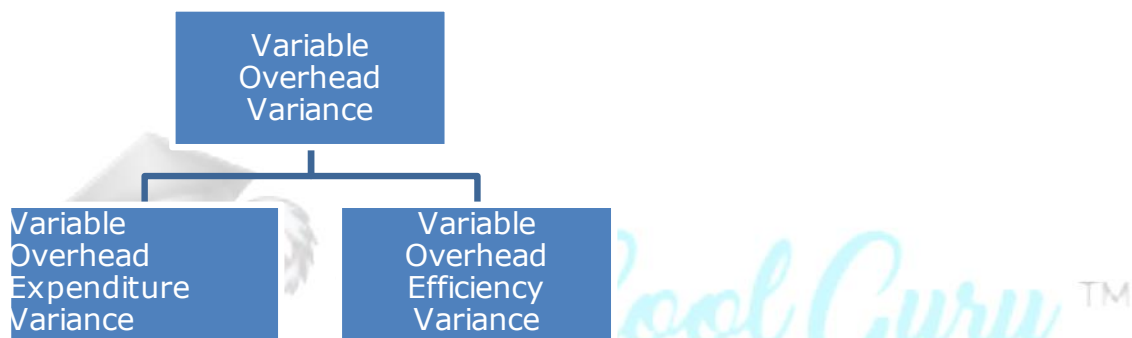
= Rs.37.5 (F) + Rs.15 (F) = Rs.52.50 (F)

Labour Efficiency Variance= Labour Gang Variance + Labour Idle Time variance + Labour

Yield Variance = Rs.15 (F) + Rs.80.10 (F) + Rs.80.10 (A) = Rs.15 (F)

Variable Overhead Variance

Variable Overhead Variance can be classified as follows:



For finding out Variable Overhead Variances; three steps are given below:

VO1—Actual overhead incurred. (It is normally given)

VO2—Actual hours worked at standard variable overhead rate (Standard variable overhead rate per hour x Actual hours worked)

VO3 —Standard variable overhead for the production (Standard/Budgeted variable overhead per unit x actual production)

Difference between **VO1** and **VO3** is Variable overhead variance

Difference between **VO1** and **VO2** is Variable overhead expenditure variance

Difference between **VO2** and **VO3** is Variable overhead efficiency variance

Example :

Following information is obtained from NSEC Ltd.

Budgeted production for the period

700 units

Budgeted variable overhead	Rs.15,000	
Standard time for one unit	20hrs.	
Actual production for the period	600u	
Actual variable overhead	Rs. 15,500	
Actual hours worked		9,500

Calculate the following variance.

- Variable overhead expenditure variance
- Variable overhead efficiency variance
- Variable overhead variance

Solution: Calculation of Variances

VO1—Actual variable overhead incurred during the period = Rs.15,500 (given)

VO2—Actual hours worked at standard variable overhead rate

$$\frac{\text{Standard variable overhead rate} \times \text{Actual hours worked}}{\text{Budgeted variable overhead}} \times \text{Actual hours worked}$$

$$\frac{\text{Budgeted variable overhead}}{\text{Budgeted variable hours for the period}} \times 9,500 \text{ hrs.}$$

(700 units x 20 hrs.)

$$= \text{Rs. } 10,179$$

VO3—Standard variable overhead for production

$$= \text{Budgeted variable overhead per unit} \times \text{actual production}$$

$$= \frac{\text{Budgeted variable overhead}}{\text{Budgeted production}} \times \text{Actual production}$$

Budgeted production

$$= \frac{\text{Rs. } 15,000}{700\text{u}} \times 600\text{u}$$

700u

$$= \text{Rs. } 12,857$$

(a) Variable overhead expenditure variance = VO1 — VO2

$$= \text{Rs.}15,500 - \text{Rs.}10,179 = \text{Rs.}5,321(\text{A})$$

(b) Variable overhead efficiency variance = VO2 — VO3

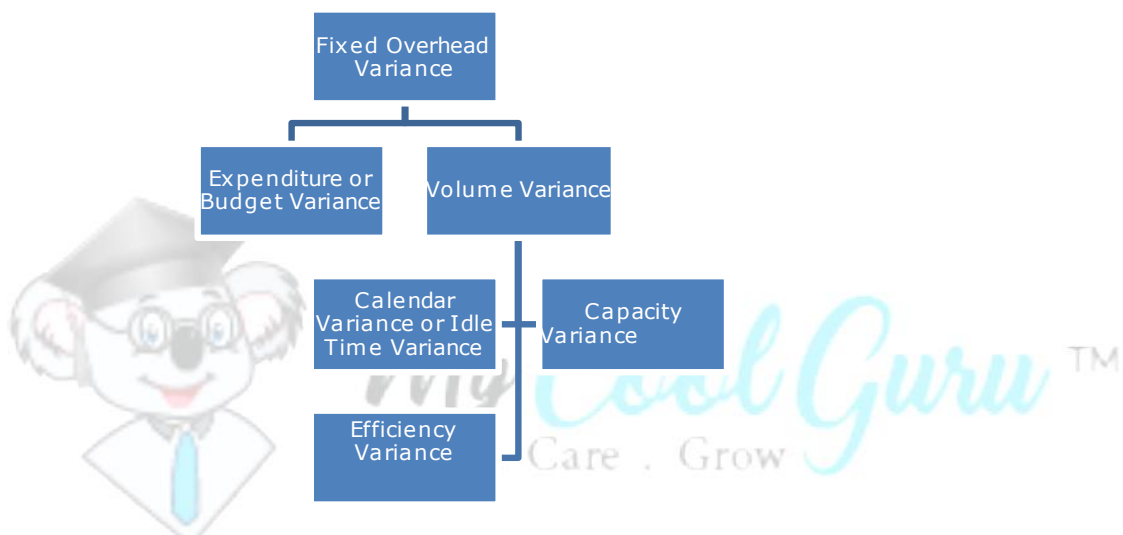
$$= \text{Rs.} 10,179 - \text{Rs.}12,857 = \text{Rs.}2,678(\text{F})$$

(c) Variable overhead variance = VO1 — VO3

$$= \text{Rs.}15,500 - \text{Rs.}12,857 = \text{Rs.}2,643(\text{A})$$

Fixed overhead variance

Fixed overhead variance can be classified as follows:



For finding out Fixed Overhead Variances; five steps are given below:

FO1—Actual fixed overhead incurred

FO2—Budgeted fixed overhead for the period or standard fixed overhead allowance.

FO3—Fixed overhead for the days/hours available at standard rate during the period.

FO4—Fixed overhead for actual hours worked at standard rate.

FO5—Standard fixed overhead for production.

Difference between **FO1** and **FO5** is Fixed overhead variance

Difference between **FO1** and **FO2** is Fixed overhead expenditure variance

Difference between **FO2** and **FO3** is Fixed overhead calendar variance

Difference between **FO3** and **FO4** is Fixed overhead capacity variance

Difference between **FO4** and **FO5** is Fixed overhead efficiency variance

Example:

From the following cost data, calculate the Fixed Overhead Variances.

	Budgeted	Actual
No. of working days	18	20
Man-hours per days	8,000	8,400
Output for man-hour in units	1.0	0.9
Overhead cost (Rs.)	1,50,000	1,70,000

Solution: Calculation of Variances

FO1—Actual fixed overhead incurred= Rs.1,70,000 (Given)

FO2—Budgeted fixed overhead for the period or standard fixed overhead allowance
Rs.1,50,000 (Given)

FO3—Fixed overhead for the days/hours available at standard rate during the period

$$= \frac{\text{Budgeted Fixed Overhead for the period}}{\text{Budgeted days}} \times \text{Actual days available}$$

$$= \frac{\text{Rs. 1,50,000}}{18 \text{ days}} \times 20 \text{ days} = \text{Rs. 1,66,667}$$

18days

FO4 —Fixed overhead for actual hours worked at standard rate

$$= \frac{\text{Budgeted fixed overhead for the period}}{\text{Budgeted hours}} \times \text{Actual hours}$$

Budgeted hours

$$= \frac{\text{Budgeted fixed overhead for the period}}{\text{Budgeted days} \times \text{manhours per days}} \times \{ \text{Actual days} \times \text{Actual manhours per day} \}$$

Budgeted days x manhours per days

$$= \{ (\text{Rs. 1,50,000}) / (18 \text{ days} \times 8,000 \text{ hrs.}) \} \times \{ 20 \text{ days} \times 8,400 \text{ hrs.} \} = \text{Rs.1,75,000}$$

FO5 —Standard fixed overhead for production

$$= \frac{\text{Budgeted fixed overhead for the period}}{\text{Budgeted production}}$$

Budgeted production

Budgeted fixed overhead for the period x

Budgeted days x Budgeted manhours per day x Budgeted output per manhour

{Actual days x Actual manhours per day x Actual output per manhour}

Rs. 1,50,000 x (20 days x 8,400hrs. x 0.9unit)

18 days x 8,000hrs. x 1.0Unit

Rs.1,57,500

Fixed Overhead Expenditure Variance=FO1—FO2= Rs.1,70,000 — Rs.1,50,000
=Rs.20,000(A)

Fixed Overhead Calendar Variance=FO2 — FO3= Rs.1,50,000 — Rs.1,66,667
=Rs.16,667(F)

Fixed Overhead Capacity Variance=FO3 — FO4 =Rs.1,66,667 — Rs.1,75,000
=Rs.8,333 (F)

Fixed Overhead Efficiency Variance= FO4 — FO5 = Rs.1,75,000 — Rs.1,57,500
=Rs.17,500(A)

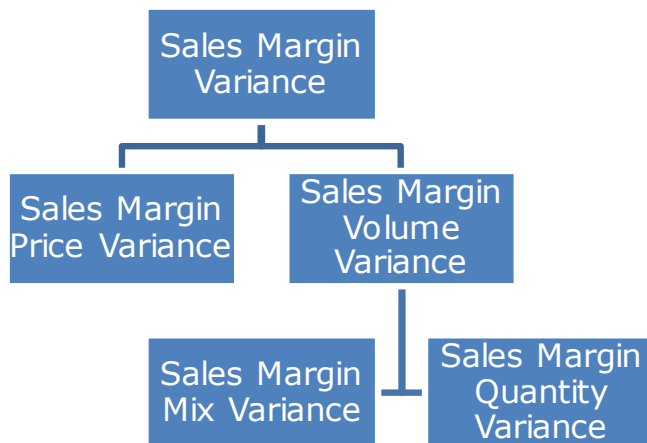
Fixed Overhead Variance=FO1 — FO5 = Rs.1,70,000 — Rs.1,57,500
=Rs.12,500 (A)

Fixed Overhead Volume Variance = Fixed Overhead Calendar Variance + Fixed Overhead Capacity Variance + Fixed Overhead Efficiency Variance = Rs.16,667(F) + Rs.8,333 (F)+ Rs.17,500 (A) =Rs.7,500 (F)

Fixed Overhead Variance= Fixed Overhead Volume Variance + Fixed Overhead Expenditure Variance = Rs.7,500 (F) + Rs.20,000 (A)=Rs. 12,500 (A)

Total Sales Margin Variance

Sales Margin Variance can be classified as follows:



For finding out the Sales Margin Variances, four model steps are given below:

SM1 —Actual sales margin on actual sale effected. Actual sales margin represents difference between realisation from actual sales and standard cost.

SM2 —Standard sales margin in actual sales effected.

SM3—Standard sales margin, if actual sales effected had been in the ratio of standard mix.

SM4 —Standard sales margin on standard sales mix or budgeted sales margin for sales as per budget or standard

Calculation of variances:

Sales Margin Price Variance = **SM1—SM2**

Sales Margin Mix Variance =**SM2—SM3**

Sales Margin Quantity Variance = **SM3—SM4**

Total Sales Margin variance = **SM1—SM4**

Sales Margin Volume variance = **SM2—SM4**

Example :

BIT Ltd. had budgeted the following sales for the month of January, 2008:

Product A 700 units @ Rs. 90 per unit.

Product B 600 units @ Rs. 180 per unit.

The actual sales for month were as follows:

Product A 850 units @ Rs. 100 per unit.

Product B 700 units @ Rs. 170 per unit

The costs per unit of products A and B were Rs. 80 and Rs. 160 respectively.

You are required to compute the different variances to explain the difference between the budgeted and actual profits.

Solution:

Actual Margin = Actual Sales – Standard Cost

$$A = \text{Rs. } 100 - \text{Rs. } 80 \quad \text{Rs. } 20$$

$$B = \text{Rs. } 170 - \text{Rs. } 160 \quad \text{Rs. } 10$$

Standard Margin = Standard Sales – Standard cost

$$A = \text{Rs. } 90 - \text{Rs. } 80 \quad \text{Rs. } 10$$

$$B = \text{Rs. } 180 - \text{Rs. } 160 \quad \text{Rs. } 20$$

SM1—Actual Sales Margin on actual Sales

$$A - 850 \text{ units} \times \text{Rs. } 20 \quad \text{Rs. } 17,000$$

$$B - \underline{700 \text{ units}} \times \text{Rs. } 10 \quad \underline{\text{Rs. } 7,000}$$

$$\underline{1,550 \text{ units}} \quad \underline{\text{Rs. } 24,000}$$

SM2—Standard Sales Margin on Actual Sales

$$A - 850 \text{ units} \times \text{Rs. } 10 \quad \text{Rs. } 8,500$$

$$B - \underline{700 \text{ units}} \times \text{Rs. } 20 \quad \underline{\text{Rs. } 14,000}$$

$$\underline{1,550 \text{ units}} \quad \underline{\text{Rs. } 22,500}$$

SM3—Standard Sales Margin, if the actual sales had been in the ratio of standard sales mix

$$A - [(700/1300) \times 1550] \times \text{Rs. } 10 \quad \text{Rs. } 8,346$$

$$B - [(600/1300) \times 1550] \times \text{Rs. } 20 \quad \underline{\text{Rs. } 14,308}$$

$$\underline{\text{Rs. } 22,654}$$

SM4—Budgeted Sales Margin

A — 700 x Rs.10 Rs.7,000

B — 600 x Rs.20 Rs.12,000

Rs.19,000

Sales Margin Price Variance=SM1 – SM2 = Rs.24,000 – Rs.22,500=Rs.1,500 (F)

Sales Margin Mix Variance = SM2– SM3 = Rs.22,500- Rs.22,654=Rs.154 (A)

Sales Margin Quantity Variance = SM3– SM4 = Rs.22,654- Rs.19,000= Rs.3,654 (F)

Sales Margin Volume Variance = SM2– SM4 = Rs.22,500 - Rs.19,000= Rs.3,500 (F)

Sales Margin Variance = SM1– SM4 = Rs.24,000 - Rs.19,000= Rs.5,000 (F)

Reconciliation

Budgeted Profit Rs.19,000

Add: Favourable Variance

Quantity- Rs.3,654 (F)

Price- Rs.1,500 (F)Rs.5,154

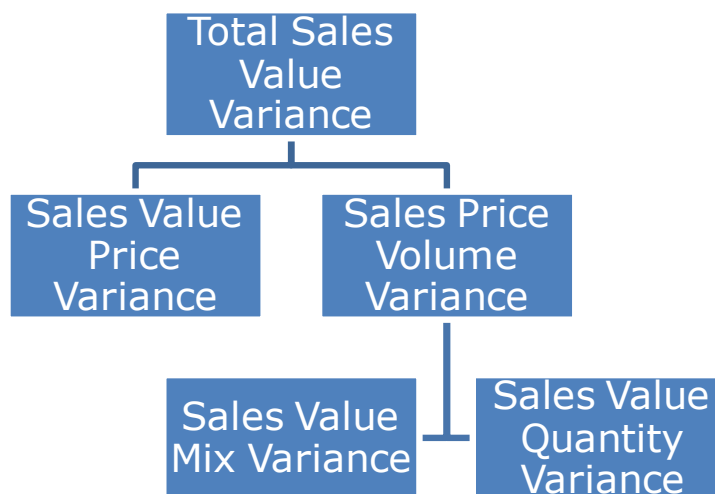
Rs.24,154 Rs. 4,932 (F)

Less: Adverse Variance - Mix Rs.154

Actual Profit Rs.24,000

Sales Value Variance

Sales Value Variance can be classified as follows:



For finding out the sales value variances, four steps are given below:

SV1—Actual value of sales realised.

SV2—Standard value of actual sales (Actual sales quantity x Standard sales price)

SV3—Standard value of actual sales if these sales had been effected according to the ratio of standard sales mix.

SV4—Standard value of sales as per standard or budget

Calculation of variances:

Sales Value Price Variance = **SV1—SV2**

Sales Value Mix Variance = **SV2—SV3**

Sales Value Quantity Variance = **SV3—SV4**

Sales Value Variance = **SV1—SV4**

Sales Value Volume Variance = **SV2—SV4**

Example :

From the following data, calculate: (i) Sales Value Variance, (ii) Sales Price Variance, (iii) Sales Mix Variance, (iv) Sales Quantity and (v) Sales Value Volume Variance.

	Standard		Actual			
	Qty.(kgs)	sales price	Total Qty.(kgs)	sales price	Total	
Rs.(kg)	Rs.		Rs.(kg)	Rs.		
Product X	400	4.00	1,600	400	4.00	1,600
Product Y	300	5.00	1,500	500	6.00	3,000
Product Z	<u>200</u>	6.00	<u>1,200</u>	<u>300</u>	5.50	<u>1,650</u>
	<u>900</u>		<u>4,300</u>	<u>1,200</u>		<u>6,250</u>

Solution:

SV1—Actual sales value realized= Rs. 6,250 (Given)

SV2—Standard Value of Actual Sales

Product X	400 x 4=Rs.1,600
Product Y	500 x 5= Rs.2,500
Product Z	300 x 6= <u>Rs.1,800</u>
Total	<u>Rs.5,900</u>

SV3—Standard value of actual sales, if these sales had been effected according to the ratio of standard mix.

$$\text{Product X} = (400/900) \times 1,200 \times 4 = \text{Rs.}2,133$$

$$\text{Product Y} = (300/900) \times 1,200 \times 5 = \text{Rs.}2,000$$

$$\text{Product Z} = (200/900) \times 1,200 \times 6 = \text{Rs.}1,600$$

Rs.5,133

SV4—Standard value of sales as per standard or budget= Rs.4,300 (Given)

$$\text{Sales Value Price Variance} = \text{SV1} - \text{SV2} = \text{Rs.}6,250 - \text{Rs.}5,900 = \text{Rs.}350 \text{ (F)}$$

$$\text{Sales Value Mix Variance} = \text{SV2} - \text{SV3} = \text{Rs.}5,900 - \text{Rs.}5,133 = \text{Rs.}767 \text{ (F)}$$

$$\text{Sales Value Quantity Variance} = \text{SV3} - \text{SV4} = \text{Rs.}5,133 - \text{Rs.}4,300 = \text{Rs.}833 \text{ (F)}$$

$$\text{Sales Value Variance} = \text{SV1} - \text{SV4} = \text{Rs.}6,250 - \text{Rs.}4,300 = \text{Rs.}1,950 \text{ (F)}$$

Concept of Responsibility Accounting:

Responsibility accounting is not a system of accounting, like financial accounting or cost accounting. This accounting is an addition of budgetary control in the sense that the organisation of each concern is divided into certain responsibility areas and the budgets are articulated in terms of planned performance for those responsibility areas.

C. T. Horngreen defined the responsibility accounting, as a "system of accounting that recognises various responsibility centres throughout the organisation and that reflects the plan of action of each of these centres by allocating particular revenues and costs to one having the pertinent responsibility." According to **Horngreen, Sundem and Stratton**, it is the "identifying what parts of the organization have primary responsibility for each objective, developing measures of achievement of objectives, and creating reports of these measures by organisation sub-unit or responsibility centre." According to Anthony and Reece,

responsibility accounting is "that type of management accounting that collects and reports both planned and actual accounting information in terms of responsibility centres." According to *CIMA, London*, it is "a system of accounting that segregates revenues and costs into areas of personal responsibility in order to assess the performance attained by the persons to whom authority has been assigned."

Large organisations have huge operating activities. It is impossible for the top management to control such activities in detail and in every area. The top management is totally liable for total authority and responsibility of the organisation. For the purpose of efficient and effective control the total authority and responsibility is decentralised by forming small segments, called responsibility centres, and allocating specific costs and revenues to these centres.

Objectives of Responsibility Accounting:

The main objectives of responsibility accounting are as follows:

Creation of Responsibility Centres: The whole organisation of a concern is divided into a number of distinct responsibility centres for better achievement under supervision of individual managers.

Appraisal of Performance: The revenues and costs for each responsibility centre are fixed up systematically through individual budgets. The manager of a responsibility centre has absolute control over its activities. The actual performance of each centre is evaluated.

Compared with the predetermined targets: After evaluating performance of each responsibility centre, it is compared with the predetermined targets.

Realistic Planning and Budgeting: Each responsibility centre has a precise goal. As a result the planning and budgeting based on responsibility centres are also more realistic.

Better Motivation and Control: As operating managers are encouraged to participate into the preparation of planning and formulation of policies, their morale is enhanced, and their efficiency is increased. Again control can be done closely and quickly as accomplishments above or below the targets are thoroughly studied and remedial measures taken.

Advantages of Responsibility Accounting:

The advantages of responsibility accounting system are as follows:

1. All activities of the organisation, (i.e., every item of income and expenditure) are allocated to the responsibility centres.
2. Profit is identified according to responsibility centre-wise.
3. The manager each centre understands what he or she has to perform with what resources available and in what time period. He or she makes his or her own way to get the things done without any intervention.
4. Independent working by the managers of responsibility centres making it easy to detect the loopholes, if any, in the operations.

Disadvantages of Responsibility Accounting:

The following are the disadvantages of responsibility accounting:

1. Success of responsibility accounting exclusively depends upon the sincere efforts put in by the managers of the responsibility centres. If their efforts are not sincere and up to the mark then the success of responsibility accounting will go into vain.
2. Responsibility accounting cannot be operated without the support of top management, because the former is only a tool in the hands of the latter.
3. Although freehand is given to the manager of each responsibility centre theoretically, in actual practice intervention of top management in every area is actually found. This is really an impediment of proper way of discharging responsibility.

Responsibility Centre:

A responsibility centre may be defined as an area of responsibility which is controlled by an individual. A responsibility centre is an activity such as a department over which a manager works out responsibility. Responsibility areas may be departments (Repairs, maintenance and painting department), product lines (Chemicals or fertilisers), territories (East or west) or any other type of identifiable unit or combination of units. The exact types of responsibility areas depend on the character of the firm and its activities. It is relatively easy to identify activities

with specific managers. A marketing manager is in charge of marketing and is usually responsible for marketing of products within budgeted cost limits. A sales manager is responsible for getting orders from customers, selling the product and so on. In most cases, it is relatively easy to identify act, with specific managers. However, in some cases it is not a simple task to isolate the responsibilities of managers.

Types of Responsibility Centres:

The following are the types of responsibility centres:

- [i] Revenue Centre,
- [ii] Expense or Cost centre,
- [iii] Profit centre, and
- [iv] Investment Centre

They are described below:

Expense or Cost Centre: A cost or expense centre is a segment of an organisation in which the managers are held responsible for the cost incurred in that segment but not for revenues. There are two types of expense centres namely engineered expense/costs centre and discretionary expenses/costs centre. Engineered costs are those for which costs can be estimated with high reliability based on the technical relationship that exists between costs and output; like, the cost of direct materials or direct labour. Discretionary costs are those for which costs cannot be perfectly estimated beforehand and must depend to a large extent on the manager's discretion. For example, the amount spent on advertising, welfare schemes, management training, research and product development etc., cannot be determined precisely. The manager of the responsibility centre has to take a decision as to the right amount of such costs in a given situation subjectively. There is no scientific way of determining the right amount. The objective of engineering costs centre is to reduce costs as far as possible consistent with quality and safety standards. The budgeted costs are calculated using the technical relationship for the actual level of output. Hence, the performance can be evaluated by comprising the actual costs incurred with the budgeted costs. The manager in charge of the centre is responsible for both levels of budgeted output as well as cost efficiency. The costs

should be minimised without sacrificing the quality.

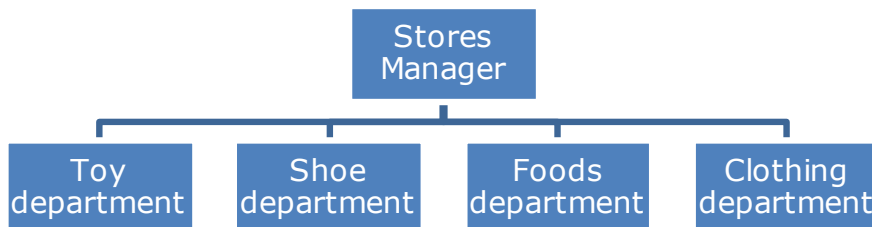
The performance of a discretionary cost centre is also evaluated by comparing the actual expenses with budgeted expenses. However, the performance evaluation is on the basis of the manager's ability to spend on the amount agreed upon. The actual should not exceed budget commitment without the knowledge of the manager. This system motivates managers to keep expenses within the budgeted level. Though, difficulties may arise in the measurement of efficiency or effectiveness since the output cannot be measured in monetary terms. In an attempt to reduce costs, the divisional manager may cut costs by ignoring maintenance or avoiding training. But it may not be good for the company. Similarly, the marketing manager may cut costs by reducing sales promotional and advertising expenses. But this may affect the sales and profitability of the concern in the long run. Thus, the conflict between short-run goal [cutting costs] and long-run goal [improving profitability] assumes particular importance in the evaluation of the performance of discretionary cost centres.

Revenue Centre: A revenue centre is a segment of the organisation which is primarily responsible for generating sales revenue. A revenue centre manager does not possess control over cost, investment in assets, but usually has some minimum amount of control over the expenses. The main focus of management's efforts will be on revenue generated by it. The performance of a revenue centre is judged by comparing the actual revenue with budgeted revenue.

Profit Centre: In a profit centre, performance is measured by the numerical difference between revenues [outputs] and expenditures [inputs]. Hence, a profit centre is a segment of an organisation whose manager is responsible for both revenues and costs. The main purpose of a profit centre is to earn profit. These managers aim at both the production and marketing of a product. The performance of the profit centre is evaluated in terms whether the centre has achieved its budgeted profit. As an example, manufacturing department is generally considered as a cost centre. Allowing the manufacturing department to 'sell' its products at an agreed rate called 'transfer price' to the selling department would be a method of making it a profit centre. The difference between the transfer price and the manufacturing costs per unit would represent the profit of the manufacturing department. Mostly profit centres are created in an organisation in which they (profit divisions) sell products or services outside the company. In some cases, profit centres may be selling products or service within the company. For example, repairs and maintenance department in a company can be treated as a profit centre if it is allowed to bill other production

departments for the services provided to them. Similarly, the data-processing department may bill each of the company's administrative and operating departments for providing computer related services.

An example of a profit centre in a department store having different retail departments is displayed below:



Investment Centre: An investment centre is responsible for both profits and investments. The investment centre manager has control over revenues, expenses and the amounts invested in assets. An investment centre can be considered as a special type of profit centre, in which focus is also on assets employed. The manager in an investment centre formulates credit policy which has a direct influence on debt collection, and the inventory policy which determines the investment in inventory. The distinguishing feature of an investment centre, that it is evaluated on the basis of the rate of return earned on the assets invested in that centre, while a profit centre is evaluated on the basis of excess revenue over expenses for the period. The manager of an investment centre has more authority and responsibility than the manager of either a cost centre or a profit centre.

Example:

TI Ltd. manufactures readymade garments by a simple process of cutting the clothes in different shapes and sewing the corresponding pieces together to form the finished products.

The Accounts Department reports the following for the last quarter of 2008:

Budgeted	Actual	
Bad Debt Losses	4,000	2,000
Cloth used	30,000	35,000
Advertising	3,000	3,000
Audit Fees	6,500	6,500
Credit Reports	2,200	2,050
Sales Representative		
Travelling Expenses	8,000	9,000
Sales Commission	6,000	6,000
Cutting Labour	5,000	5,700
Thread	500	450
Sewing Labour	16,000	17,400
Credit Dept. Salaries	7,000	7,000
Cutting Utilities	800	700
Sewing Utilities	900	950
Director Marketing		
Salaries & Administration Expenses	19,000	20,400
Production Engineering Expenses	12,000	11,200
Sales Management Office Expenses	15,000	14,700
Production Manager Office Expenses	17,000	16,000
Director Manufacturing		
Salaries & Administration Expenses	20,000	19,000

Using the above data, prepare responsibility accounting reports for the Director-Marketing, the Director-Manufacturing and the Production Manager.

Solution:

Responsibility Accounting Reports

For the Production Manager

	Budgeted	Actual	Variance
	Rs.	Rs.	Rs.
Cutting Department:			
Cloth	30,000	35,000	5,000 (Unfavourable)
Cutting Labour	5,000	5,700	700 (Unfavourable)
Cutting Utilities	800	700	100 (Favourable)
Total Cutting Dept. (A)	35,800	41,400	5,600 (Unfavourable)
Sewing Department:			
Thread	500	450	50 (Favourable)
Sewing Labour	16,000	17,400	1,400 (Unfavourable)
Sewing Utilities	900	950	50 (Unfavourable)
Total Sewing Dept. (B)	17,400	18,800	1,400 (Unfavourable)
Total (A + B)	53,200	60,200	7,000 (Unfavourable)

For the Director – Manufacturing

Production Department (calculated earlier)	53,200	60,200	7,000 (Unfavourable)
Production Engineering Expenses	12,000	11,200	800 (Favourable)
Production Manager-Office Expenses	17,000	16,000	1,000 (Favourable)
Total	82,200	87,400	5,200 (Unfavourable)

For the Director-Marketing

Sales Representative:			
Travelling Expenses	8,000	9,000	1,000 (Unfavourable)
Sales Commission	6,000	6,000	-
Total (A)	14,000	15,000	1,000 (Unfavourable)

Sales Management-Office Expenses (B)	15,000	14,700	300 (Favourable)
Advertising (C)	3,000	3,000	-
Credit Department salaries	7,000	7,000	-
Credit Reports	2,200	2,050	150 (Favourable)
Bad Debt Losses	4,000	2,000	2,000 (Favourable)
Total (D)	13,200	11,050	2,150 (Unfavourable)
Total (A + B + C + D)	45,200	43,750	1,450 (Favourable)



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