

Economics, Management and Entrepreneurship
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Lecture – 16
Flexible Budgets and Variance Analysis

Good morning. Welcome to the 16th lecture on Economics, Management and Entrepreneurship. In the last lecture, we discussed about how to make the master budget. As I said then, the master budget basically reflects in financial terms, in monetary terms, the annual plan or future plan. That sets targets for the company. The targets should be achieved. Today, we shall discuss that there are various reasons for which the targets may not be achieved.

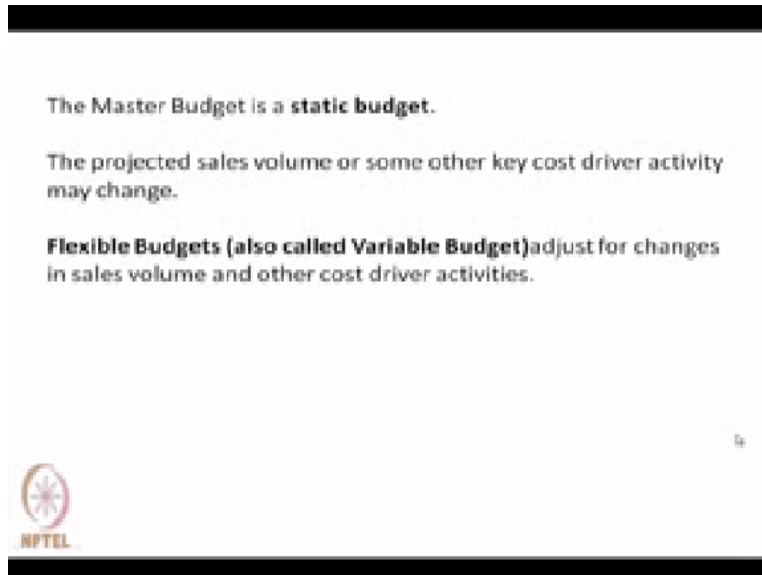
If for example the sales, actual sales vary. If you recall, in the last lecture we said that the very basic assumption or estimate made is on sales on the basis of which the master budget is prepared. Now if the sales estimates or sales forecasts does not hold true in practice, if the actual sales differ, differ by a great amount, then the budgets, the master budget needs to be changed and that is the topic for today.

One, first part of our lecture today will be, if the activity of the company undergoes a change, the basic activity in terms of sales undergoes a change, then how the budget would differ and therefore, the performance of the company would differ and the second part is that if various other budgets that we had prepared, if they also vary, then the actual figures, the actual performance will also change and then how, therefore, we compare with the targets set by the master budget.

And then how we can interpret it and then who or which manager would be accountable for this, this is the topic for today. And we will call this flexible budgets and variance analysis. By flexible budgets, we basically mean that if the sales forecast or certain basic assumption that we had made, undergoes a change in practice, then a new budget needs to be prepared. This we call it a flexible budget and then variance is basically the difference between the actual performance and the target that was planned in the budget, that is the variance.

So today's topic is flexible budgets and variance's analysis.

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Flexible Budgets and Variance Analysis. Master budget is basically a static budget because it assumes the sales to be constant or certain key cost drivers are constant or unchanging; therefore, it is a static budget but the projected sales volume or some other key cost driver unit may change and therefore we need to have a flexible budget that will also called variable budgets and they are just for the changes in sales volume or in values of key cost driver activities.

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Flexible-Budget and Activity-level Variances

Differences between the flexible budget and the actual results are called **flexible-budget variances**.

They are written as either **Favourable (F)** or **Unfavourable (U)**.


Differences between the master budget amounts and the amounts in the flexible budget are called **activity-level variances**.



The differences between the flexible budget and the actual results are called the flexible budget variances whereas the differences between the master budget and the flexible budget amounts are called activity level variances. So these are the 2 basic differences. The differences between the actual and the flexible budget is the flexible budget variance and the difference between the master budget and the flexible budget are called the activity level variances.

And they are written as either favourable with an abbreviation F or unfavourable with an abbreviation U. Say for example, if the master budget had assumed a sale of Rs. 50,000 in the month of April but the actual appears to be much less, something like 40,000, then this is an activity level variance of sales and this is unfavourable.

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	Actual Results	Flexible Budget Variances	Flexible Budget for Actual Sales Activity	Sales-Activity Variances	Master Budget
Unit	x_1	-	x_1		x_0
Sales	px_1	-	px_1	F/U	px_0
Total Var Costs	Tva	F/U	vx_1	F/U	vx_0
Contribution Margin	$px_1 - Tva$	F/U	$(p-v)x_1$	F/U	$(p-v)x_0$
Fixed Costs	F	F/U	F	-	F
Operating Income	$px_1 - Tva - F$	F/U	$(p-v)x_1 - F$	F/U	$(p-v)x_0 - F$
	(1)	(2)	(3)	(4)	(5)
		= (1) - (3)		= (3) - (5)	
		Efficiency		Effectiveness	
	 Master Budget Variance = Col (1) - Col (5) = FB Variance + SA Variance				

Now in this connection, we write down here this is the master budget, the last column, the master budget. This is the actual results. Master budget had plan for x_0 number of units but the actual results were x_1 only. It could be more, it could be less but it significantly differs from x_0 ; Therefore, we need to make a budget assuming x_1 number of units and not x_0 number of its. So as I was telling if in the month of April, the original assumption was that sales which is basically unit price*the number of units px_0 , p is the unit price of rupees per unit.

And these many units in April. Suppose that this $p \times x_0$ was 50,000, initial assumption for sales forecast but actual it became 40,000. So we have to make a budget assuming that it is 40,000. Accordingly, we have to make the budget, that is flexible budget. Suppose that the total variable cost initially was unit variable cost $v \times$ the number of units in sale, so that was vx_0 . In the flexible budget, it is $v \times x_1$, v is the unit variable cost but the actual variable cost could differ.

It could be Tva , total variable cost actual. Then we can compare between master budget and flexible budget and we can compare between actual and flexible budget. We can also compare between master budget and actual results. Now contribution margin is sales-total variable cost. It is $px_1 - Tva$ for the actual. For flexible budget, it is $p \times v \times x_1$. For the master budget, it is $p \times v \times x_0$. Assuming that fixed cost is constant all through for master budget and flexible budget and the actual, the operating income then becomes the contribution margin-the fixed cost.

Contribution margin-the fixed cost. Contribution margin-the fixed cost. Now if we compare the columns, call this columns, this is column number 1 let us say, this is 2, 3, 4 and 5. If we compare 1 with 3, since the sales here are same, we would expect that the operating income as budgeted should be met because the sales are same. The actual may be less or more. If the actual is less, then it is less than the target at this level of activity, then it is unfavourable, U.

But if our actual result is better than this, then it is favourable. Now this is basically how efficiently a manager works. The managers have worked in the month of April. It is 1-3 column, 1 and 3. That means we compare the actual with the flexible budget at that level of sales at which the actual sales took place. So it basically reflects the managerial efficiency. Whereas if you compare the master budget that was originally planned and the flexible budget.

See the original plan was Rs. 50,000 but the actual become, the flexible budget was met for 40,000 because the actual was 40,000. Therefore, the operating income at this level is much less than the operating income at that level. This difference is called effective because the sales unit for which the forecast was made could not be achieved. That means the company, the sales managers were not very effective in increasing their sales activities but given the sales, the production managers were quite efficient in maintaining it.

Now if we subtract 1 and 5, that means if we compare actual results with the master budget, 1-5, is basically 1-3+3-5, that means if you add these 2 columns total, you also get the same thing. So basically this is flexible budget variance, 1-3 is flexible budget variance that indicates efficiency of the company in meeting its revised target of x1 sales activity and this is called sales activity variance.

This is how effectively the company has met its initial target. If you add these 2, you get the master budget variance. So we have here introduced 3 to 4 terms, 5 terms in fact. One, the flexible budget of course and the different variances. Flexible budget variances, this is the difference between actual and flexible budget. We have defined sales activity variances which is the difference between flexible budget and the master budget and now we are introducing master budget variances which is the difference between actual results and master budget.

Also at the same time, we are saying that flexible budget variance reflects efficiency of the company in meeting its revised target of x_1 or $p \cdot x_1$ sales and effectiveness reflects the company's ability to meet its initial targets of $p \cdot x_0$. So we call these as, this is, this as flexible budget variance of operating income, sales activity variance of operating income, so on and so forth.

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Effectiveness

- Doing the right things.
- The degree to which the goal or objective or target is met.

Sales-Activity Variance is a measure of effectiveness. Unfavourable variances are to be explained by Marketing Managers.

Efficiency

- Doing the things right.
- The degree to which inputs are given in relation to a given level of outputs.

Flexible-Budget Variance is a measure of efficiency. Unfavourable variances are to be explained by operating managers.

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Now effectiveness sometimes is known as doing the right things. The degree to which the goal or objective or target is met. So for production manager, the revised goal is $p \cdot x_1$ that is to be met. That is efficiency in fact but doing the right things meaning the sales forecast was placed at 50,000, to what extent this has been able to be met, that is effective and sales activity variance is a measure of effectiveness. Unfavourable sales activity variance are to be explained by the marketing managers or sales personnel.


Efficiency is doing the things in the right way. That means if a company, it is found that the flexible budget variance is favourable, it means the company is doing its, the production managers are doing the things in the right way. The degree to which inputs are given in relation to a given level of output. Unfavourable variances are to be explained by operating managers. So this is the difference. The flexible budget variance is to explained by operating managers. Sales activity variance is to be explained by marketing or sales department managers.

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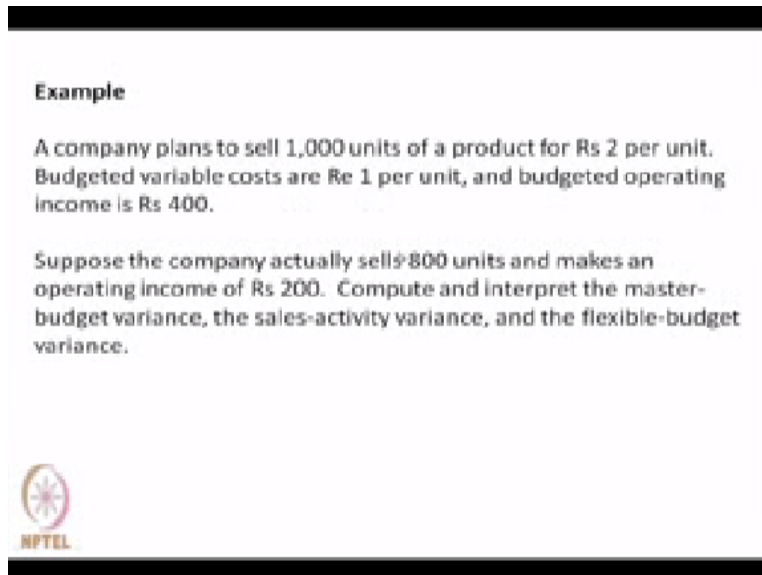
Master-budget variance

- = Actual results – Master budget values
- = Sales activity variance + Flexible-budget variance



And master budget variance is basically the difference between actual and master which is basically sales activity variance+flexible budget variance as we have shown. Columns 1-5 is basically the sum of the 2 variances.


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Example

A company plans to sell 1,000 units of a product for Rs 2 per unit. Budgeted variable costs are Re 1 per unit, and budgeted operating income is Rs 400.

Suppose the company actually sells 800 units and makes an operating income of Rs 200. Compute and interpret the master-budget variance, the sales-activity variance, and the flexible-budget variance.



Let us take an example to illustrate this. A company plans to sell 1000 units of a product for Rs. 2 per unit. Budgeted variable costs are Rs. 1 per unit and budgeted operating income is Rs. 400. The company actually sells 800 units. See it was planning to sell 1000 units. So this is something like master budget at a price of this. So the actual was 800. Therefore, it has to make a flexible budget for 800 and makes an operating income of Rs. 200.

This is the actual operating income. Compute and interpret master budget variance, sales activity variance and flexible budget variance.

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Solution:

Given: Master budget sale = 1,000 units @ Rs 2 per unit, i.e., 2,000 Rs
Master budget variable costs = Re 1 per unit, i.e., 1,000 Rs
Master budget operating income = Rs 400
Actual sale = 800 units, i.e., 1,600 Rs
Actual operating income = Rs 200

Sales-activity variance of operating income
= FB op income – MB op income = 200 – 400 = 200 U

Master-budget variance of operating income
= Actual op income – MB op income = 200 – 400 = 200 Rs U

Flexible-budget variance of operating income
= Actual op income – FB op income = 200 – 200 = 0 Rs

The company is efficient, but not effective, because its flexible-budget variance is zero, but its sales-activity variance is unfavourable as it could not meet its sales target.

Now this is how we go. Given master budget sale as 1000 units at the rate of Rs. 2 equalling Rs. 2000 and master budget variable cost is Rs. 1 per unit and there are 1000 units, so it comes to Rs. 1000. Master budget operating income is given as Rs. 400. Actual sale is 800 units at this price, Rs. 2 per unit. So it comes to Rs. 1600 and the actual operating income is Rs. 200. So these are the data given.

We are required to find out these 3 variances. First of all, sales activity variance of operating income. Sales activity is effectiveness. So we will compare the flexible budget with the master budget operating income. The flexible budget operating income is same as actual, Rs. 200 but master budget operating income is Rs. 400. So this is unfavourable because of loss of sales. Instead of Rs. 1000, it is now 800 units.

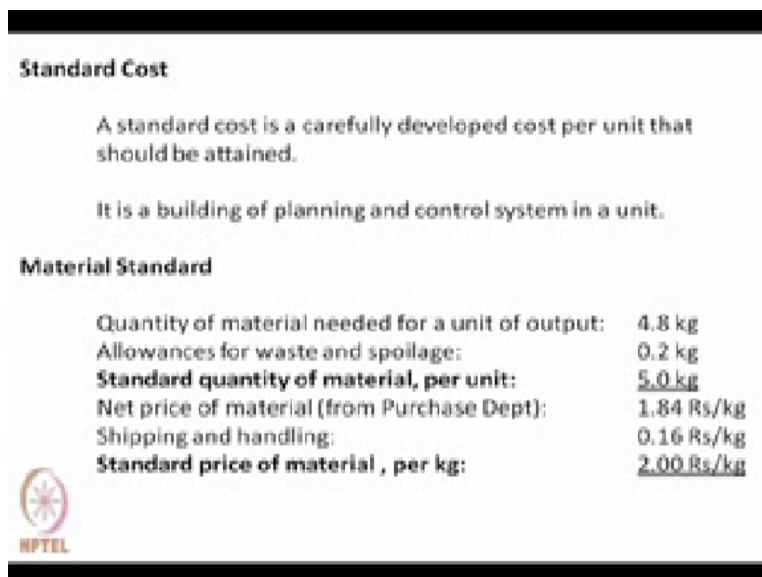
So the operating income has come down, 200 units, Rs. 200, is unfavourable. When we talk about the master budget variance of operating income, it is comparing the actual operating income with master budget operating income. The actual operating income is also Rs. 200 and the master budget operating income is 400. The difference is Rs. 200, that also is unfavourable

but now look at the flexible budget variance, that is actual, in this case we compare what?

Compare actual operating income with flexible budget operating income. Both are equal, it is equal to 0. We can also get this information by, we know that this is equal to this+this. So they are equal thus there has to be 0. So from here we see that the company has not been able to meet its original target of 1000 units. Therefore, it is ineffective.

The company is not effective because it could not meet its original sales target but given the revised sales activity which is 800 units, it has done well. It has been able to meet its flexible budget of operating income, of Rs. 200. So it is efficient in terms of maintaining the operating income in the light of the new sales target of 800 units and Rs. 1600. So this is the difference between efficiency and effectiveness.

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Standard Cost

A standard cost is a carefully developed cost per unit that should be attained.

It is a building of planning and control system in a unit.

Material Standard

Quantity of material needed for a unit of output:	4.8 kg
Allowances for waste and spoilage:	0.2 kg
Standard quantity of material, per unit:	5.0 kg
Net price of material (from Purchase Dept):	1.84 Rs/kg
Shipping and handling:	0.16 Rs/kg
Standard price of material , per kg:	2.00 Rs/kg



Now, sorry (()) (20:50 - 21:44: Voice not clear). Now we take up a very important concept of standard cost. Basically a standard cost is a carefully developed cost per unit that should be attained. It is a building of planning and control system in a unit. Budget is actually a target for a group of items for the entire period whereas standard cost is basically a target for a unit of items. That is the difference between budget and standard cost.

To be able to control costs, one need to have a standard cost. So that is what we are trying to talk

here. Here we shall discuss about standard material cost, standard labour cost and standard variable overhead expenses. Let us see one by one. First of all, material standard. Quantity of material needed for a unit of output, let us say that this is the designer tells us that this much of material is needed.

So basically it is the design engineer who says that this is the amount needed. The production manager also, production engineer also says that this is the amount needed. So that let us say is 4.8 kilogram. Then we give certain allowances for waster and spoilage based on previous practice, based in input from industrial engineering division of the company. They say that this is 0.2 and therefore, standard quantity of material needed for unit of output is 5.0 kilogram.

Now from purchase department, let us say that the net price of the material is Rs. 1.84 per kilogram whereas transport charges and material handling charges may come to Rs. 0.16 per kilogram. Therefore, standard price of material per kilogram will be Rs. 2 per kilogram. So we know from here that per unit 5 kilogram is required and for standard price is Rs. 2 per kilogram. Therefore, this * this is Rs. 10 per unit of output of direct material consumed. So this is how standards are decided.

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Labour Standard (Piece-Rate System)	
Time required for efficient production, per unit:	0.4 h/unit
Non-Production time (20 % of total time allowed):	0.1 h/unit
Standard direct-labour hour/unit:	0.5 h/unit
Basic hourly wage rate:	12.50 Rs/h
Payroll taxes (10 %):	1.25
Fringe benefits (18 %):	2.25
Std. direct-labour rate:	16.00 Rs/h
Price Variance (or Rate Variance for Labour)	
= (Difference in unit price of inputs)	
x (Actual units purchased)	
Usage (or Efficiency or Quantity) Variance	
= [(Inputs actually used) – Inputs that should have been used]	
x [Standard unit price of inputs]	

Now let us talk about labour standard assuming a piece-rate system. Suppose that the industrial engineering department has done a work study and they have found the time required for

efficient production as 0.4 hour, 15 minutes per unit, 0.4 hour per unit and there is always certain allowances given for waste, for fatigue, for personal needs to the workers. Let us say that that is 20% of the total time and that total time is 0.5, 20% of that is 0.1 and this add up to 0.5 hours per unit, meaning 30 minutes.

So this is the standard direct labour hour per unit, 30 minutes or 0.5 hour per unit. Now the basic hourly wage rate is let us say Rs. 12.50 per hour. On that we add taxes, personal taxes and fringe benefits. They may come to these amounts and direct labour rate then comes to Rs. 16 per hour. This is how standard direct labour rates are prepared. Now the price variances can be calculated or usage variances can be calculated.

The price variances also known as rate variance per labour is taken as equal to difference in the unit price of inputs*the actual units purchased. Suppose that there is a price variation of what we had standardised or what we have taken as standards and the actual, there could be a difference. So that difference multiplied with the actual units purchased is known as price variance and if it is usage variance, then we say that the price remaining constant, the actual usage differs.

We may have plan for certain number of units and the actual number of units needed was this, the difference is taken and then they are multiplied by the unit price to give the usage variance.

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Example:

A company has a set a standard cost of direct material as 10 Rs/unit and a standard cost of direct labour as 8 Rs/unit.

They are derived from standard input requirement of 5 kg/unit of DM @ 2 Rs/kg and of $\frac{1}{2}$ hour/unit of DL with with 16 Rs/hour.

In the past year, the company has incurred the following costs for the production of 7,000 units of output:

DM: It purchased and used 36,800 kg of material @ 1.90 Rs/kg for a total cost of 69,920 Rs.

DL: It used 3,750 hours of labour @ 16.40 Rs/labour-hour for a total cost of 61,500 Rs.



Find the variances.

We are giving this in the form of an illustration. A company has a set of standard cost of direct material as Rs. 10 per unit and a standard cost of direct labour as Rs. 8 per unit. How are they derived? They are derived from this basic information that the standard input requirement is 5 kg per unit and the price, standard price is Rs. 2 per kilogram. So 2×5 gives us Rs. 10 per unit. 50 minutes of direct labour, half-hour and they are paid Rs. 16.

This example we had already taken in one of our last slides. So this is how $16 \times \frac{1}{2}$ makes it Rs. 8 per unit. Standard cost of direct labour. This is prepared. This is set by the company. Now in a particular year, the company has incurred the following costs for the production of 7000 units of output. So the output is 7000. So on that basis, they should have spent Rs. 10×7000 , 70,000 as direct material cost and 7000×8 , Rs. 56,000 as direct labour cost.

Whereas it was found that it purchased and used 36,800 kg of material and the price was only 1.90, not Rs. 2, Rs. 1.90 and therefore the total cost came as Rs. 69,922 and for the labour, instead of Rs. 16, it had to pay Rs. 16.40 and it used 3750 hours of labour. So the total cost came to Rs. 61,500. Find the price and the usage variances? Basically here that is the question.

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	Actual Costs	Flexible Budget	Flexible Budget Variance
DM	69,920	70,000	80 F
DL	61,500	56,000	5,500 U

Flexible Budget for DM (or Total Standard DM Cost Allowed)
 $= (7,000 \text{ units})(5 \text{ kg/unit})(2 \text{ Rs/kg}) = 70,000 \text{ Rs}$

Flexible Budget for DL (or Total Standard DL Cost Allowed)
 $= (7,000 \text{ units})(\frac{1}{2} \text{ hour/unit})(16 \text{ Rs/hour}) = 56,000 \text{ Rs}$

DM price variance = (Actual price – Std Price)(Actual Quantity)
 $= ((1.90 - 2.00) \text{ Rs per kg})(36,800 \text{ kg}) = 3,680 \text{ Rs F}$

DL price variance = (Actual price – Std Price)(Actual Quantity)
 $= ((16.40 - 16.00) \text{ Rs per hour})(3,750 \text{ kg}) = 1,500 \text{ Rs U}$

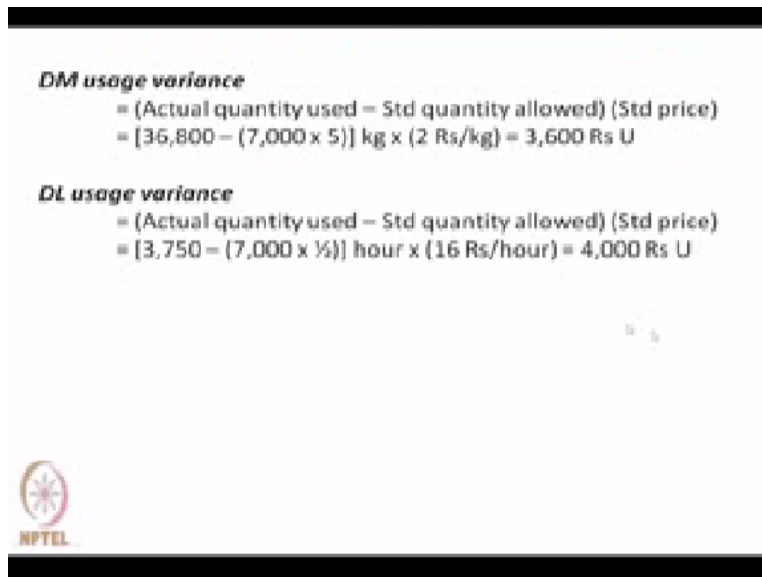
We now put them in the form of a table first of all. The direct material and direct labour, the flexible was 70,000 and 56,000 but the actual costs were 69,920, it is less. So it is better. It is favourable and by how much, Rs. 80 is the flexible budget variance. The direct labour cost

however increased. So this is unfavourable and the amount is 5500 unfavourable and we already have told how this 70,000 is calculated.

7000*amount needed*price and how the flexible budget for DL is calculated as 56,000, we have discussed already Rs. 16, 1/2 hour, 7000. Now the direct material price variance will be price difference*the quantity used. The price difference is Rs. 1.9-2 per kilogram. Actual quantity is 36,800. So price, direct material price variance is Rs. 3680 favourable. Whereas direct labour price variance is actual quantity*the difference between the 2 prices, 16-16, 16.40-16*3750=Rs. 1500 also favourable.


I am sorry, this is favourable but this appears to be unfavourable because they are paying more price for direct labour. So actual price is Rs. 16.40. So this is unfavourable, there is a mistake here.

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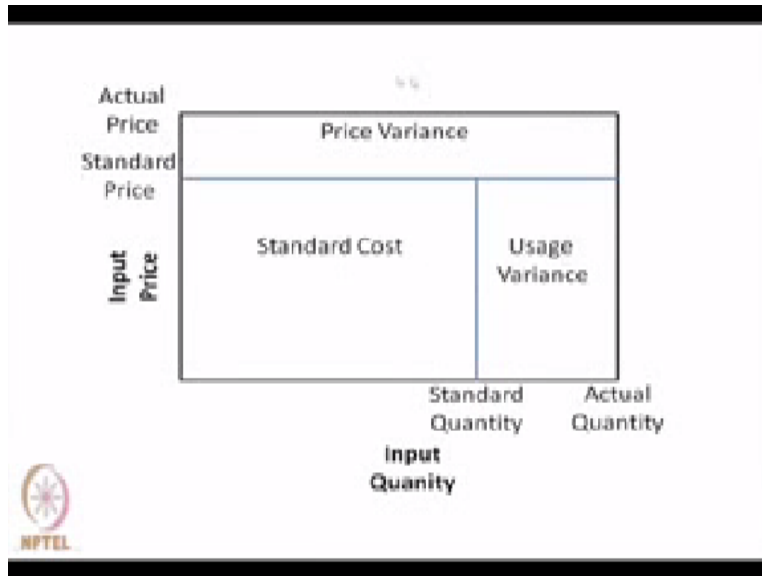
DM usage variance
= (Actual quantity used - Std quantity allowed) (Std price)
= [36,800 - (7,000 x 5)] kg x (2 Rs/kg) = 3,600 Rs U

DL usage variance
= (Actual quantity used - Std quantity allowed) (Std price)
= [3,750 - (7,000 x 1/2)] hour x (16 Rs/hour) = 4,000 Rs U



Now the direct material usage variance is the actual quantity used-standard quantity allowed * standard price. Now this is Rs. 3600 unfavourable. They have used more material and direct labour usage here is also unfavourable because they have used more direct labour, more quantity. This is Rs. 4000 unfavourable.

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Now this is shown here in this form. This axis is input quantity and only the unfavourable situation is shown there. This is the standard quantity plan for. The actual quantity may be more. Similarly, on the y-axis, we have shown input price and this is the standard price and we have shown an unfavourable situation of actual price being higher than the standard price. Then we say that the standard price*standard quantity is the standard cost.

The price variance is given as the difference in the prices which is actual-standard*the actual quantity used. So this is the price variance. The usage variances are the standard price. The difference between the actual quantity and the standard quantity. So this difference*this height is the standard price, that is called the usage variance.

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Overtime Variances

Suppose overhead budget is a direct function of DL-hour, then

Variable –Overhead Efficiency Variance

$$= (\text{Actual DL-hour} - \text{Standard DL-hour}) \times (\text{Standard Variable O/H rate/hour})$$



Now we talk about overtime variances. It is difficult to make a standard for overtime variance but suppose that we are talking only about variable overhead variance and variable means that it depends on certain things. Suppose that we assume that it is a direct function of direct labour hour, then we can say or define a quantity called variable overhead efficiency variance as actual direct labour hour-standard direct labour hour * standard variable overhead rate per direct labour hour.

So this difference is * this thing has to be naturally found out and taken as a standard. Then we can also find out variable overhead efficiency variance.

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Cost Control Performance Report

	Actual	Flexible Budget	Flexible Budget Variance	Explanation
Variable Costs				
DM	69,920	70,000	80 F	Lower Prices, Higher Usage
DL	61,500	56,000	5,500 U	Higher Wage Rate
Internal Transport				
Idle Time				
Cleanup Time				
Other Indirect labour
Misc. Supplies				
Variable Manfg. Costs				
Shipping Exp	2,000	1,400	600 U	Use of Air Freight
Fixed Costs				
Factory Supervision	14,700	14,400	300 U	Salary Increase

Usually such cost control performance reports are prepared. This is an example. 2 things that we have already just now talked about is direct material and direct labour. These are the data and this is favourable and this was unfavourable. The managers are supposed to give explanations for both favourable and unfavourable variances. In this case, if direct material cost was, variance was favourable, then it is because of lower prices and higher usage.

That is the reason why it gave rise to a favourable variance but direct labour was unfavourable and it could be because of higher wage rate from Rs. 16, it was Rs. 16.40. So that is the reason. So such explanations are called from different operating department managers. They are supposed to give reasons why, shipping expenses for example as unfavourable and it could be because they had to go for air transport which is more costly.

Factory supervision will be unfavourable because there had been an unforeseen salary increase of the supervisors. So this more or less gives a pressure on the managers. They have to explain why the variances were there, particularly why there were unfavourable variances and if there were favourable variances, how to work up on this and make it even more favourable. So this is how costs are controlled.

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Responsibility Center


It is a set of activities and resources assigned to a manager, a group of managers or other employees.

It entails

- ownership of management decisions
- autonomy of decision making
- delegation of authority

Examples

A set of machines	Production Supervisor
A Department	Department Head
Entire Organization	CMD



Now friends we are now going into little more involved topic of Responsibility Centres. You might have heard of cost centres, profit centres and how to therefore control costs in those

centres, that is the topic now, Responsibility Centres. Basically a responsible center is a set of activities and resources assigned to a manager, a group of managers, or other employees. So basically it is a set of activities and resources put together, assigned to a manager.

So a manager is responsible basically for a responsibility center. Therefore, he is accountable, he owns, he takes decisions, he has then authority and he is also responsible for achieving the targets and examples are, suppose that there is a production supervisor. He is incharge of a set of machines. So the responsibility center is a set of machine and he is the overall incharge. A department is a responsibility center. The department head is incharge.

The entire organisation is a responsibility center and the chairman and managing director is the person who is responsible for the entire organisation's performance.


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Classification of Responsibility Centers

Cost Center: One in which managers are responsible for costs only.
Examples: Assembly Line, Maintenance Dept.

Profit Center: One in which managers are responsible for revenues and costs (expenses), i.e., profitability.
Examples: Guesthouse, University Press, Transport Section

Investment Center: One whose success depends on both income and invested capital. Thus revenue, costs, and investment matter.
Examples: A company as a whole or a Division of a Company



Now we can classify responsibility centres into 3 types broadly. Cost centre, profit centre and investment center. Cost centres are one, a cost center is one in which managers are responsible for costs only. An example is the maintenance department. There is no profit here. An assembly line. It is only cost. A profit centre on the other hand is the entire organisation or a guesthouse, a university press, even a transport section.

Here not only cost but also revenues are considered and therefore, the difference between the

revenue and cost, that is profitability, is the main concern. It is called a profit centre. Sometimes also one talks about an investment centre in which the success of the responsibility center depends on both, the income and the invested capital. Meaning here we talk about not only revenue and cost but the amount of investment made. Something like return and investment. So a company as a whole or a division of a company is an example of an investment center.

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Management Control Systems

It is a set of techniques for gathering and using information to make planning and control decisions, evaluating performance, and motivating employees.

It encompasses

- Administrative control (through budgets)
- Accounting controls (through internal control)



Now normally we design management control systems. The management control system is basically a set of techniques for gathering and using information to make plan and control decisions, evaluate performance and thereby motivate employees. Now it encompasses 2 sets of control. One is administrative control through budgets. The second is accounting controls. Already we have considered the budgetary control, the administrative control.

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Accounting Control System

It consists of methods and procedures that are concerned with

- (i) Authorization of transactions, their accurate recording and safeguarding of assets (thus prevent errors and irregularities)
- (ii) Reconciling accounting records with independently kept records and physical counts (thus detect errors and irregularities)
- (iii) Promoting operating efficiency by examining policies and procedures for possible improvements.



Accounting control is what we talk about here. It consists of methods and procedures that are concerned with authorisation of transactions, accurate recording and safeguarding of assets, reconciling accounting records with independently kept records and physical counts and promoting operating efficiency by examining policies and procedures. This is accounting control systems. Basically ensuring that there are no errors or irregularities.

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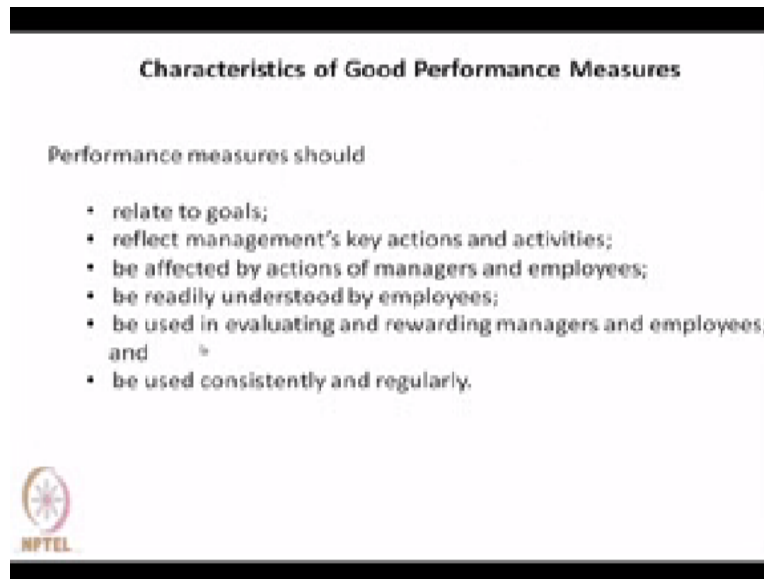
Design of Management Control Systems

1. Identify a responsibility center specifying the primary responsibility for each action.
2. Develop performance measures and targets for the responsibility center.
3. Monitor and report on actual performance measures and variances.



Now to design a management control system, we normally what we do is to first identify a responsibility center specifying the primary responsibility for each action. Then we develop performance measures and targets and then monitor and report on the actual performance and their variances.


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Characteristics of Good Performance Measures

Performance measures should

- relate to goals;
- reflect management's key actions and activities;
- be affected by actions of managers and employees;
- be readily understood by employees;
- be used in evaluating and rewarding managers and employees;
- and
- be used consistently and regularly.



Normally the performance measures should be such that they must relate to the goals of the responsibility center. It must reflect the responsibility center's manager's key actions and activities and it must be influenced by the managers and employee's actions of that responsibility center. It should be so easy to understand by the employees that they should work towards achieving the target and these measures should be used in evaluating and rewarding them and should be used consistently and regularly.

So this is very important how to fix the performance measures and these are the important things to remember to set the performance measures.


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Performance Measures could be

- Financial
- Non-Financial

Non-Financial Measures:

- Quality
- Productivity
- Control of Cycle Time
- Balanced Scorecard



They could be financial or they could be non-financial. Financial measures already we have discussed about variances, about standard costs, we have already discussed them in detail. Non-financial measures are gaining importance now. In course of our discussion, we shall talk about quality of products and services, what is expected as quality targets and what is actually achieved and how to control quality.

These are the things that we shall discuss in great detail and quality comes as non-financial measure. The second is productivity. Productivity is the ratio between output and input. How much input resources we have spent in achieving our output? Either with the same input, we can increase the output or we can reduce the input to get the same output. So in either case, if output is increased for the same input spent, there is an increase in productivity or to achieve the same output, if we reduce our input, then also productivity is increased.

Therefore, the target on productivity could be set and then we may decide, we may work on various actions of the managers to improve productivity, that is another non-financial measure of performance. The third type of non-financial measure is the cycle time. Basically cycle time means how well we schedule our activities. How well we are able to keep our output ready for delivery to the customers.

If there is a deliberate delay, then we are likely to lose a particular potential sale and that is

unfortunate. Therefore, cycle time should be as less as possible, basically production time. Cycle time is production time, should be as less as possible so that we can produce as more materials, as more output as possible in a particular time period and that improves our production figure, that improves our schedules, that improves the availability of finished products for delivery to the market and to the customers.

So the details about the first 3 non-financial measure, namely quality, productivity and reduction of cycle time, we shall discuss in great detail in our subsequent lectures when we talk about production management in some detail. For the time being, we go to the 4th non-financial measure which is balanced scorecard.

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Balanced Scorecard	
Financial	Processes
Economic profit realized	Percentage reduction in process cycle time
Income from operations	Number of engineering changes
Working capital	Capacity utilization
Operational cash flow	Order response rate
Inventory turns	Process capability
Customers	Competence
Rank in customer survey	Leadership competence
Market share	Percentage of patent-protected turnover
Repeat order rate	Training days/employee
Complaints	Quality improvement team participation
Brand index	

Balanced scorecard basically says that it is just not financial measures that are important, also important are processes, customers and competence issues. On the financial measures, so you can see that this balanced scorecard contains both financial, the financial measures and the non-financial measures. There are 3 types of non-financial measures. One is the processes that produces the output, the people for whom the output is prepared and the ability of the people.

The employees to be able to make our products suitable for customers and make them available in quality and right quality, right price and at right time. On the financial aspects, already we have already seen these things. One is profit, income, working capital, cash flows, inventory

turnovers. So these are financial measures. Processes: Percentage reduction in process cycle time, number of design changes, capacity utilisation, order response rate, process capability. Some of these terms we shall discuss in detail later when we talk about production management.

Customer issues such as if there had been a customer survey where this particular company is ranking, market share of the company in this particular market, how many times customers have repeated their orders, a particular customer has repeated its order, whether customer complaints are many or whether their brand stands as separate in comparison to the competitors. These are customer issues.

About the employees of the organisation, there are issues like leadership competence, patent protected turnovers, number of days for which the employees are given training, whether the team have participated in various quality improvement programs of the company is exercising or organising. Now these are competence issues. So basically balanced scorecard shows not only financial figures but the non-financial figures as well.

Now to sum up, I would like to say that a master budget basically makes a financial or reflects a financial figures of the annual plan made by company and its managers. The actual sales figure could be different and therefore flexible budgets need to be prepared. Once flexible budgets are prepared, we try to see how efficiently the company and its managers have been able to meet the flexible budget targets.

If they have not been able to meet the flexible budget targets, they are inefficient and if they meet or more than meet the flexible budget targets, they are efficient. Now if the actual sales activity is more than the master budget sales activity, the company is effective. If it is not, the company is ineffective. Accordingly, different variances could be favourable or unfavourable. Then we discussed about control aspects.

Control aspects, one is from the budget. This is a macro control. From the budget values, we can find out what favourable or unfavourable variances have occurred. Why they have occurred. Who is response but at the unit level, we can also exercise controls by defining certain standards.

Standard direct labour, standard material cost and standard variable overhead expenses. Given these values, we can find out the usage variance and the price variances.

Apart from these variances, we can also go for different or other types of performance measures for particular responsibility centres. Responsibility center is basically a set of activities and resources which is controlled by a manager. We can define responsibility centers as cost centre, profit centre, or investment center. Accordingly, the reports have to be made and the management control system has to be designed and the values have to be monitored and fed back as reports to the concerned managers.

And they are supposed to explain if there are variances. Important thing to note here is that financial measure is not the only thing. Important non-financial measures, particularly relevant to the processes, to the customers and to the employees are also important. Balanced scorecard is a device in which all the performance measures, financial and non-financial, concerning processes, customers and...

Processes, customers and the competence of the employees are also given due weightage. So in these 2 lectures on budgets, we have talked about how to prepare master budgets, how to prepare flexible budgets, how to find variances at the unit level to define standard costs and how to design management control systems. Thank you very much.