

Chapter 13

Budgeting and Material Variances

How do I draw up a materials budget and analyse the materials variance to improve my organisation's performance?

A business draws up a materials budget to plan the quantities of each type of material its production department will use over the next year.

The materials budget sets out which materials are needed, how many are required, and how much they cost.

An accurate materials budget will help the organisation to increase its gross profit margin, either through controlling its costs of sales, or by accepting that greater materials costs are necessary, and shifting the focus onto increasing sales revenue.

It helps the business to:

Increase its gross profit margin

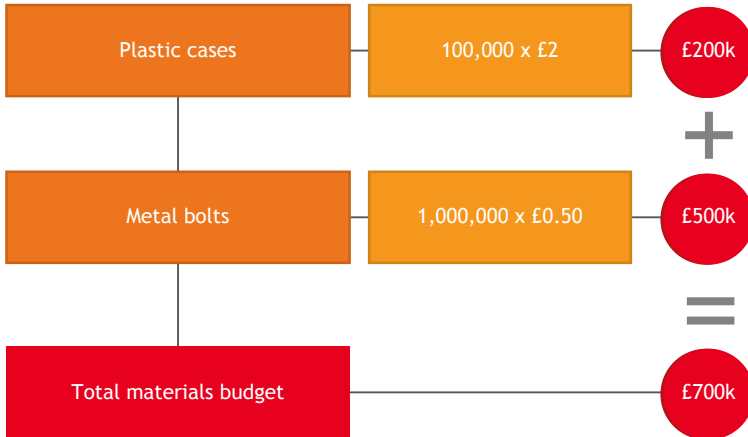
Control its cost of sales

Focus on increasing sales revenue when necessary

The business will estimate the budgeted or standard quantity of each type of material it will use for production over the next year, as well as estimating the budgeted or standard price it will pay for each of these. Multiplying the two gives the budgeted materials cost for each type of material used. These can then be added to give the business its total materials budget.



For example, the production department may plan to use 100 000 plastic cases at a standard price of £2 per unit, giving £200 000, and 1m metal bolts at a standard price of 50 pence per unit, giving £500 000. The total materials budget is therefore £200 000, plus £500 000, which equals £700 000.



Materials Variance

In the same way as conducting variance analysis for other budgets, the finance department will calculate the materials variance to effectively monitor and control materials costs throughout the year. The materials variance equals the budgeted materials cost, minus the actual materials cost.

If the business in our example actually spent £800 000 on materials, this gives a materials variance of £700 000, minus £800 000, which equals negative £100 000. The negative figure means that there would be an adverse materials variance of £100 000, because the actual materials cost is over budget.



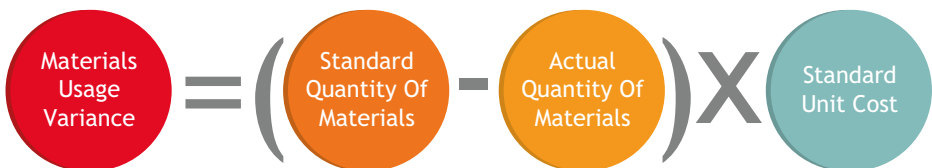
$$= 700,000 - 800,000 = -£100,000 \text{ (A - 'Adverse')}$$

Materials Usage Variance

To analyse why the materials spend is over budget, we can calculate the materials usage variance as being the standard quantity of materials that were budgeted for, minus the actual quantity of materials used, multiplied by the standard unit cost of materials that was in the budget.

In our example, if we assume that the business used plastic cases exactly as planned then we need only analyse the materials variance for metal bolts.

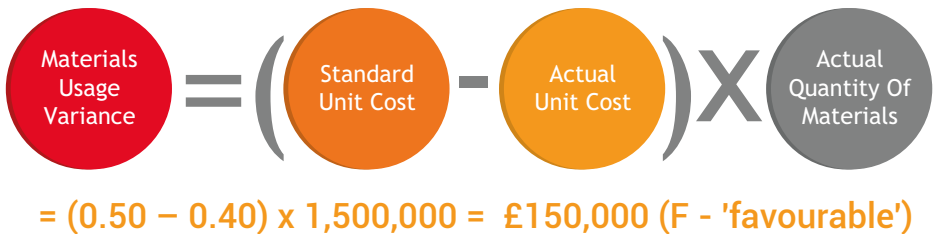
If the business actually used 1.5m metal bolts, this gives 1m bolts, minus 1.5m bolts, times 50 pence, which equals a negative or adverse materials usage variance of £250 000, because more materials were used than planned.



$$= (1,000,000 - 1,500,000) \times 0.50 = -£250,000 \text{ (A)}$$

Materials Price Variance

But this adverse materials usage variance of £250 000, is more than the adverse materials variance of £100 000. So we now need to calculate the materials price variance as being the standard unit cost of materials, minus the actual unit cost of materials that was paid, multiplied by the actual quantity of materials used. If the metals bolts actually cost 40 pence, this gives 50 pence, minus 40 pence, times 1.5m, which equals a favourable materials price variance of £150 000, because materials were cheaper than planned.



$$\text{Materials Usage Variance} = (\text{Standard Unit Cost} - \text{Actual Unit Cost}) \times \text{Actual Quantity Of Materials}$$

$$= (0.50 - 0.40) \times 1,500,000 = \text{£}150,000 \text{ (F - 'favourable')}$$

Materials Variance Analysis

So we can see that overall, materials were £100 000 over budget because more materials were used than planned, which cost an extra £250 000, but that these materials were cheaper than budgeted for, which saved £150 000. Indeed, these may be connected, because using cheaper materials to secure a favourable materials price variance, may mean that lower quality, sub-standard materials result in more wastage and an adverse materials usage variance.

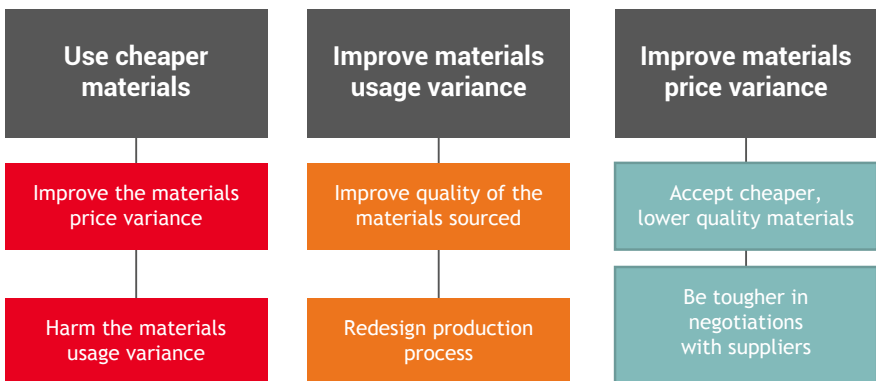
£100,000 (A) Materials Variance = -£250,000 (A) Materials usage variance + £150,000 (F) Materials price variance

So what actions should a business take after analysing its materials variance?

It may decide to improve an adverse materials usage variance by improving the quality of the materials sourced or redesigning its production process so that materials are used more efficiently and there is less waste.

Alternatively, it could improve an adverse materials price variance by accepting cheaper, lower quality materials, or by being much tougher in negotiations with suppliers. But we should remember that an adverse materials variance does not always mean the organisation is failing to manage its materials effectively.

It could simply be that the organisation failed to budget correctly in the first place.



Correct budget for next period