Paper P1 (also relevant to P2) Performance Operations

The key to splitting a total variance into its planning and operational components – a crucial P1 skill – is to find the planning variance first and then base your operational calculation on the revised standard

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The application of standard costing methods is a core area of the syllabus in which P1 candidates should be highly prepared. One topic in this area that often causes problems is that of planning and operational variances.

The splitting of a total variance into its planning and operational elements recognises that:

- Variances can arise from changes in factors external to the business, which may not have been known or acknowledged by standard-setters at the time of planning. These are known as planning variances.
- Other variances can arise through factors that are almost entirely within the control of operational managers. These are known as operational variances.

CIMA's official terminology refers to these more formally as:

- Planning variances: "A classification of variances caused by ex-ante budget allowances being changed to an ex-post basis. Also known as a revision variance."
- Operational variances: "A classification of variances in which non-standard performance is defined as being that which differs from an ex-post standard. Operational variances can relate to any element of the standard product specification."

(I tend not to use the terms "ex-ante" and "ex-post" and will instead use "original" and "revised" respectively.)

Managers will want to draw a distinction between these variances to gain a realistic measure of operational efficiency. Planning variances may arise from faulty standard-setting, but the responsibility for this lies with senior, rather than operational, managers.

It should be noted that all deviations between actual and budgeted costs can be subdivided and attributed to either planning or operational causes.

Let's revisit some basics of standard costing, remembering that P1 candidates are assumed to have brought forward all of their knowledge from their C01 studies. (P2 candidates are assumed to have brought forward all of their knowledge from C01 *and* P1 – so standard costing remains examinable in the P2 paper.)

November 2011's P1 paper (which can be downloaded from the CIMA website at bit.ly/P1Nov2011) contains a question featuring a wedding-cake company called TP and I shall use some of the information from its scenario here.

The standard direct material cost of cake ingredient A is given as 4kg at $25 per kg = $100.

The actual results obtained for the period include the following:

- Production: 9,000 units.
- Direct material cost of ingredient A: 35,000kg at $26 per kg = $910,000.

TP uses just-in-time purchasing and production systems, which means that there is no opening or closing inventory during the period.

In the absence of any further information, we would calculate the variances as follows:

Total material cost variance for ingredient A	
Standard cost:	
9,000 units x 4kg x $25/kg	$900,000
Actual cost:	
35,000kg x $26/kg	$910,000
Material cost variance	$10,000 (A)

Divided into material price variance...	
Actual cost:	
35,000kg x $26/kg	$910,000
Standard cost:	
35,000kg x $25/kg	$875,000
Material price variance	$35,000 (A)

... and material usage variance	
Actual output did use	35,000kg
Actual output should have used:	
9,000 units x 4kg	36,000kg
Operational usage variance	1,000kg (F)
Material usage variance:	
1,000kg x $25/kg	$25,000 (F)

But the question scenario adds that "the general market price at the time of purchase for ingredient A was $23 per kg". In other words, the original standard was incorrect. The correct approach, therefore, is first to calculate the difference between the original and revised standard costs and report that as the planning variance; and then to calculate the operational variances based upon the *revised* standard cost as follows:

Total planning variance for ingredient A	
Original standard cost:	
9,000 units x 4kg x $25/kg	$900,000
Revised standard cost:	
9,000 units x 4kg x $23/kg	$828,000
Planning variance	$72,000 (F)

Note that this is a favourable variance because there has been a reduction in the expected cost of the ingredient. We now calculate the operational variances based on the new standard as follows:

Material price variance for ingredient A	
Actual cost of 35,000kg:	
35,000kg x $26/kg	$910,000
Standard cost of 35,000kg:	
35,000kg x $23/kg	$805,000
Material price variance	$105,000 (A)

Material usage variance for ingredient A	
Actual output did use	35,000kg
Actual output should have used:	
9,000 units x 4kg	36,000kg
Operational usage variance	1,000kg (F)
Material usage variance:	
1,000kg x $23/kg	$23,000 (F)

Note also that the three variances combined ($105,000 adverse – $23,000 favourable – $72,000 favourable) reconcile back to the original total material cost variance of $10,000 adverse for ingredient A.

The important point is that we can distinguish between variances that have arisen at the planning stage and those that have arisen as a result of operational performance. For example, here we >

Gallerystock

overestimated the cost of ingredient A required by $2 per kg, resulting in the favourable planning variance of 36,000kg x $2 per kg = $72,000. This reveals the extent of the error made at the planning stage, which may have arisen through a lack of market research or a poor appreciation of changes that had occurred in the market.

Perhaps more significantly, the operational price variance for ingredient A is much worse than it was originally. The actual purchase price of $26 per kg is $3 per kg above the "new" general market price, which for 35,000kg is "costing" the company $105,000 rather than $35,000 as before. The wisdom of the purchasing manager's decision to buy the ingredient at $26 per kg can, therefore, be evaluated more accurately.

Note that the operational usage variance for ingredient A is also costed at the revised standard cost of $23 per kg, which values it more appropriately.

We can add to the original scenario used in the exam question by looking at what would happen if, in addition to our new knowledge about the general market price of ingredient A, we were to discover that the expected usage of ingredient A in a unit is more accurately stated as 4.5kg per unit rather than 4kg per unit.

We now need to calculate the difference between the original and new revised standard costs and report that as the new planning variance. Then we need to calculate the operational variances based on the new revised standard cost. So first we have:

Total planning variance for ingredient A

Original standard cost:	
9,000 units x 4kg x $25/kg	$900,000
Revised standard cost:	
9,000 units x 4.5kg x $23/kg	$931,500
Planning variance	$31,500 (A)

Note that this is an adverse variance, since there is an increase in the expected cost of the ingredient.

While it is possible to split the planning variance into its price and usage components, it is advisable to report the planning variance as a whole unless you are specifically required by the question to split it.

There are two alternative methods that could be used to split the planning variance. These are as follows:

Splitting the planning variance: method 1

Price planning variance:	
9,000 x 4kg x ($25 – $23)	72,000 (F)
Usage planning variance:	
9,000 x (4kg – 4.5kg) x $23	103,500 (A)

Reconciling: $103,500 adverse – $72,000 favourable = $31,500 adverse.

Splitting the planning variance: method 2

Price planning variance:	
9,000 x 4.5kg x ($25 – $23)	81,000 (F)
Usage planning variance:	
9,000 x (4kg – 4.5kg) x $25	112,500 (A)

Reconciling: $112,500 adverse – $81,000 favourable = $31,500 adverse.

Now we are able to calculate the operational variances based on the revised standard cost as follows: