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1. Introduction

Planning is an essential tool for the management of any company. Sometimes there is a difference between the planned and actual values. This is the so-called deviation or also called in the environmental variance.

2. Discussion

A case study is presented by a British company XLG for the production of cleaning products, which sells its products through local shops and through online trade. With the outbreak of the Coronavirus in March 2020, the company was forced to close local stores and sell its products entirely online due to government measures and restrictions imposed by the government.

The government reveals the main factors for spreading the dangerous virus and provides measures to prevent it. According to experts, a significant factor in the spread of the virus is in contact with contaminated surfaces. The government's recommendations for cleaning and disinfecting surfaces and personal hygiene have led to an increase in demand and sales of cleaning and disinfecting agents. (gov. UK, 2020)

Part A

2.1.1 The sales price variance and sales volume contribution variance:

We will calculate the deviation from the selling prices and the deviations in the sales volume for the second quarter with the provided information.

Assume the 20/21 accounting year for XLG starts on the 1/12/19

Total units sold: 1600

Material price variance: £27000 F

Actual sales volume for:

Chemical X: 850

Chemical Y: 750

Standard sales price per unit

Chemical X: £35

Chemical Y: £30

Actual sales price:

Chemical X: £45

Chemical Y: £37

Standard margin per unit:

Chemical X: £25

Chemical Y: £20

ID	Description (product)	Actual price per unit	Standard price per unit	Difference	Actual volume	Sales price variance
		£	£	£		
1	Chemical X	45	35	10	850	8,500 A
2	Chemical Y	37	30	7	750	5,250 A
	Total:					13,750 A

The total Budgeted sales volume is £1190:

Chemical X: £595

Chemical Y: £595

In order to best calculate the difference in the sales price, the given information is entered in the respective table and is calculated according to the formula the variance.

Difference = Actual price – Standard price:

Chemical X = £45-£35 =£10

Chemical Y = £37-£30 =£7

Sales price variance = (Actual price - Standard Price) x Actual volume

Chemical X = (£45-£35) x 850 = 8,500

Chemical Y = (£37-£30) x 750 = 5,250

Total sales price variance=Sales price variance Chemical X+Sales price variance Chemical Y

Total sales price variance = 8,500 + 5,250 = 13,750 A

It is evident that the resulting difference between the standard and the actual price is multiplied by the actual volume to obtain the price variance: £10 x 850 and £7 x 750.

Similarly, in order to calculate the contribution variance in sales volume, the information given is entered in the relevant table and calculated according to the variance formula. (Atrill, McLaney, 2018)

ID	Description (product)	Actual sales volume	Budgeted sales volume	Difference	Standard margin	Sales volume variance
		£	£	£		
1	Chemical X	850	595	255	25	6,375 F
2	Chemical Y	750	595	155	20	3,100 F
	Total:					9,475 F

Difference = Actual sales volume – Budgeted sales volume

Chemical X: £850 - £595 = £ 255

Chemical Y: £750 - £595 = £ 155

Sales volume contribution variance = (Actual sales volume - Budgeted sales volume) x Standard margin:

Chemical X: $(850-595) \times 25 = 255 \times 25 = 6,375$ F

Chemical Y: $(750-595) \times 20 = 155 \times 20 = 3,100$ F

Total sales volume variance = Sales volume variance Chemical X + Sales volume variance Chemical Y

Total sales volume variance = $6,375 + 3,100 = 9,475$ F

The difference between Actual sales volume and Budgeted sales volume is multiplied by the standard margin to obtain the sales volume variance: 255×25 and 155×20 .

2.1.2 The material price planning variance and material price operational variance.

The deviation is the higher price of the main chemical ingredient FamaQ, which is contained in the company's products. This ingredient is patented, and no other manufacturer is allowed to use it. The ingredient is produced in Brazil and delivered to the manufacturer by sea. Due to the pandemic of the measles virus, international travel is severely limited and difficult. Therefore, the company is forced to deliver the ingredient famaQ by air transport, which makes the delivery more expensive, and hence the price of the ingredient increases.

With the provided information and through the formula the material planning variance and material price operational variance are calculated. (Atrill, McLaney, 2018)

Original standard price per unit: £2,50

Increased price per unit: £ 4,50

Actual paid per unit: £ 3,70

Material planning variance = (original target price – general market price at time of purchase) x quantity purchased

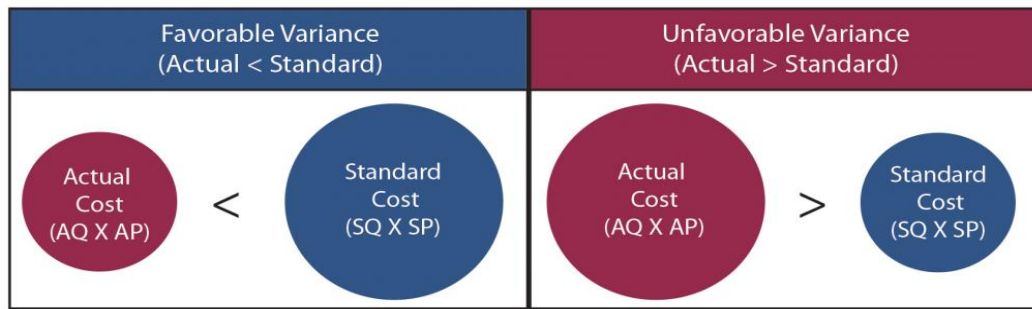
Material planning variance = $(£2,50 - £ 4,50) \times 1600 = -£3,200$ A

$$2,50 - 4,50 = -2 \times 1600 = 3200 \text{ unfavorable}$$

Material price operational variance = (General market price at time of purchase – actual price paid) x quantity purchased

Material planning variance = $(£4,50 - £3,70) \times 1600 = £ 1,280$ F

$$4,50 - 3,70 = 0,80 \times 1600 = 1280 \text{ favorable}$$



Source: <https://commerceiats.com/variance-analysis/> , Variance Analysis

2.1.3. The merits and demerits of using variances

Due to the coronavirus pandemic and the recommended measures by specialists and the government, many surfaces that people touch in their daily lives are cleaned and disinfected more often. This leads to the purchase of larger quantities of cleaning products, which leads to an increase in demand for these products. (gov.UK, 2020)

At the beginning of the pandemic, a few days before the country was quarantined and cities closed, goods such as soaps, hand sanitizers, toilet paper, antibacterial wipes, cleaners, and disinfectant gels were bought mainly from local shops. Large chain stores had empty shelves in just a few days, and this put pressure on manufacturers of such products to produce more to respond to demand. (BBC News, 2020)

Like other manufacturers, XLG began to produce more during this period. The production manager responsible for purchasing the materials would buy more during this period than budgeted. According to the table's calculations, it is evident that the real sales volume has increased due to the increased demand for the products.

The new way of delivery of the main ingredient fama Q to the production of products is a factor that affects the price and quantity. This can lead to an unfavorable deviation in the price and a deviation in fama Q's quantity.

The management of the company is aware of the reason that caused the deviations in the price and quantity of the materials, which leads to the decisions of the production manager for the decision to buy more materials, according to the budget.

On the other hand, if the main ingredient's purchase price continues to rise, this would lead to a higher price of the final product in the future, which will also cause a deviation in the sales price. Of course, if the demand for cleaning products continues to increase, for example, when re-locking the country, due to the expected second wave of the dangerous virus COVID-19 in the fall, it is possible that the price of the final product will not increase dramatically. It is possible that people will start to stock up again, and there will be another panic shopping in the local shops, emptying the shelves with cleaning and disinfecting agents.

Using the analysis of deviations as merit, the evaluation for events under managers' control can be indicated. It also helps managers make effective decisions with the ability to develop and upgrade.

In the case of an increase in sales of cleaning products, the deviation in the planned quantity and the actual sales, allows to produce more, which will lead to more sales.

The disadvantage is the high price of the main ingredient. When there are deviations in the prices of materials, this can force managers to buy cheaper materials, which will affect the quality of the final product. Deviations often serve as a method of control. If the price of materials does not stop rising and the unfavorable deviation increases, this allows managers to control this problem area and make a decision to solve the problem. (Cohen and Pant, 2018)

The deviations identify the presence of losses and can be controlled by making decisions about the deviation that has occurred, and if it persists over time, it can be inserted into the standards. A disadvantage of the analysis of deviations is that they take a long time to calculate and are challenging to track. Through the deviations of managers are allowed to be responsible and show how they would cope with making the right decisions.

Companies often use the grant method. This is when management puts more money in the budget for the material's price, the rate of labor, the quantity of material, or the hours worked per unit. Then, even if the costs are higher, the management will not have difficulty and will be at a good level. This method of granting is also an advantage of using variances. (Cohen and Pant, 2018)

When the standards are not set correctly, it leads to common deviations between the actual and standard values. Then, management decisions may not be beneficial in the long run and in the best interest of the company to achieve the tolerances. The ability of managers to use variation correctly is a way to achieve the company's long-term goals.

Part B

4.1.1 The product's competitive advantage

The main ingredient that the company imports from Brazil, Fama Q, is a significant factor that provides a competitive advantage for developing the business with a highly competitive environment. The ingredient is patented, and only the XLG company can use it to produce its products.

2.1.5 The product's demand

According to market research, the increase in demand for detergents will continue. In the event of a second wave of the spread of the crown virus, the surfaces' cleaning and disinfection will continue. It is assumed that people will continue with this established habit of cleaning more often for a long time, which will not only prolong but also completely change the demand, supply, and production of cleaning products.

2.1.6 The cost of the cleaning ingredient in the UK

In the UK, the cost of producing the main ingredient Fama Q is £3, and the delivery time is reduced by 15 days. The crown virus pandemic is a valuable lesson for businesses around the world. Restrictions on international travel have slowed down and completely changed the business environment. Despite the ability to import the main ingredient for its products from Brazil, even at a higher price, the company's management can choose the option of producing this material on home soil for a lower unit price and faster delivery by 15 days. This would make it easier for the company to produce if the UK were re-quarantined. Concerns about delayed deliveries and high purchase prices will not be a factor for the company, which will procure everything it needs within the country.

3. Conclusion

Deviations are a method that helps Managers to solve problems that have arisen in the short term and to make decisions, giving them responsibility. The deviations show what actions we can take and for what period.

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