

# Shuzworld suitable method for production of sneakers essay examples

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## **Shuzworld Suitable Method for Production of Sneakers**

Shuzworld has been given the go-ahead to produce Samba Sneakers by the marketing team. These brightly-colored sneakers will be aimed at teens and pre-teens and have colorized rubber soles. There are 3 options available for the production of the sneakers. They include using reconditioned equipment, purchasing new equipment in its Shanghai plant, or outsourcing to another manufacturing operation. The following is an analysis of the 3 options in order to determine the one which minimizes cost while at the same time maximizes the profits.

The reconditioning option requires Fixed Costs of \$ 50, 000 and Variable Costs of \$ 1, 000 for every 1, 000 Sneakers. New equipment, on the other hand, requires Fixed Costs of \$ 200, 000 and Variable Costs of \$ 500 for every 1, 000 sneakers. The final option, outsourcing, does not incur any fixed costs, but has Variable Costs of \$ 3, 000 for every 1, 000 sneakers.

In order to determine the most cost-effective option from the three alternatives, I will use Cost-Volume Break-even Analysis. This method helps us compare the alternatives by determining the least costly method at any given volume (Jaedicke & Robichek, 1964). The first step is to first determine the comparison of break-even points. This is determined by finding the difference between the Fixed Costs and dividing this difference by the difference in Variable Costs / unit of two options.

$$\text{Break-even Units} = (\text{FC1} - \text{FC2}) / (\text{VC1} - \text{VC2})$$

**For instance, to find the break-even points for reconditioning vs. buying new equipment,**

$$= (500,000 - 200,000) / (1000 - 500) = 300 \text{ units}$$

**The following is a summary of the analysis.**

Cost-Volume Analysis was chosen since it is able to give a fair comparison between the three options and is able to give a reliable low cost alternative (Kortge, 1984). It is also able to show us the advantage of each of the options over the others. For instance, the number of break-even units of reconditioning vs. buying new equipment is 300 units. That of buying new equipment vs. outsourcing gives a break-even of 80 units while the break-even of reconditioning vs. outsourcing is 25 units. The highest break-even point is 300 units, meaning that when using the method, Shuzworld can decide to start manufacturing the sneakers at 300 units.

**Sales Forecast for Four Corners Store**

Shuzworld would also like to forecast the sales of a Four Corners store which they have been collecting sales data on. They want to develop a sales volume forecast using the using the least squares method and another forecasting method. Below is a summary of the sales data from Four Corners Store.

Using least squares method, I am able to come up with a trend of the sales from the store which will help in the forecast. The least squares method is used since the independent and dependent variables are linearly related. The different quarters will be the independent variables while the sales will be the dependent variables.

## **Least Squares Method for Estimating Sales**

Apart from least squares method, exponential smoothing is another method that can be used to forecast next period's sales which Shuzworld can use.

This is a method specifically used for time series data to make forecasts (Box, Hunter, & Hunter, 2005).

The following graph gives a visual representation of the collected data analyzed by the exponential smoothing method. Similarly to the least squares method, there is an increasing sales trend for shoe sales.

### **The following table shows the exponential smoothing figures that were used to construct the graph.**

#### Control-chart Metrics

Shuzworld has been applying control chart metrics to monitor the shoe sole height from shoes made by the dual-density rubber machines. It has also employed the use of control charts to determine the number of defectives from the sample fraction defectives for 20 operators of their eye-letting machines. They want us to analyze the situation and help them know how best to make use of the control charts to improve the quality in the Shuzworld production line.

Control charts are charts used to evaluate whether the manufacturing process is under control. They have an upper limit and a lower limit which help to determine if the units are produced within the acceptable limits. A random sample of units is taken and measured to determine if they are being correctly produced.

Shuzworld may find control charts easy to use since they give a visual representation of the progress of the shoe production process (Gujarati,

1995). They are easy to interpret since they are graphical. The graphs contain the upper and lower limit and the measurements from the units are plotted on the graph. Units outside the control limits are easily noted hence it is easy to know the proportion of units which are being produced beyond the limits set by the company.

There are two types of causes that cause variations in production; natural causes and assignable causes. Natural causes are normal ones which are expected by the company. They cause minimal variations and may not cause a lot of alarm. Examples of natural or common causes are inappropriate procedures and poor maintenance of the machines. On the other hand, assignable causes make substantial variations in the production process and they have to be investigated. Some examples of assignable or special causes are poor adjustment of equipment, computer crashes and power black outs (Barnard, 1959). The special causes of variations should be investigated immediately they are noted and measures taken to correct them. This is because they may be costly for the company since the units which have the variation are considered as spoilt, hence a cost to the company.

Shuzworld control chart shows the sole height of 15 randomly selected shoes over a 16 hour period. The chart has a control limit of 99.73% and the population standard deviation is 0.5 inches. The upper control limit is 10.375 inches and the lower control chart limit is 9.625 inches.

In addition to the control charts for the shoe sole height samples, the company also has a control chart for 20 operators of their eyeleting fraction defective. These machines are used to create eyelets in the boots and men's shoes. This control chart has an upper control limit of 0.125 and a lower

control limit of 0. The control limit is also 99.73%. From the chart, there are also 2 'out of control' operators which are a sign of assignable cause which should be investigated.

In order to make good use of the control chart metrics, Shuzworld should ensure that they collect data frequently and regularly from the production of the machines. The data collected from the sampled units are then plotted on a control chart with relevant upper and lower control limits. Information from this process overtime will enable the company to determine if there are any signs of assignable causes which should be determined to control the production process. Shuzworld may decide to check whether the material of the shoes vary so as to make differences in the eyelets hence causing the variation.

Another use for the control chart which Shuzworld can employ to improve the quality of its production process is by creating a sales control chart. Sales are plotted overtime to determine a sales trend, for instance, for a year. Values below the lower control chart limit will signify lower sales level which should not be condoned. Management should investigate and find the reason for the drop in sales. Measures should consequently be taken to prevent sales level from reaching the lower limit. Consequently, if there are sales values which are above the upper limit reasons should be sought to know how management can make that level constant.

## References

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