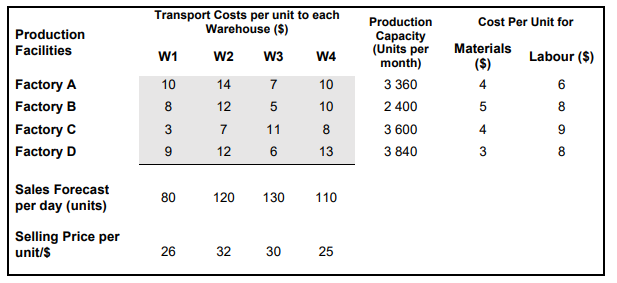
Linear programmingh

Focus Plastics produce good quality plastic kitchenware for domestic use, including for example, plastic mixing bowls, sets of plastic cups and plates, etc. The company has four factories across the USA and all their products are sold via four regional wholesaler outlets (warehouses) to a large network of general and specialist retailers throughout North America. Product is transported by road freight to each wholesale warehouse outlet (W1, W2, W3 and W4) from the different production facilities. The Operations Director (overseeing both manufacturing and logistics) would like to know what the optimal production and distribution network solution should be to maximise the profit for a set of multi-coloured plastic plates that has seen a recent increase in sales. The production costs per set ($/unit) of 6 plates are provided in the table below together with the unit transportation costs. The table also includes the company’s selling price per unit (different for each wholesale outlet), the production capacity of each factory per month and the forecast of daily sales provided by each wholesale outlet. Each factory operates 6 days per week. Product is sold 6 days per week.



1 Formulate the Linear Programme for this problem. Your aim is to maximise profit.

2. Using Excel Solver, determine the maximum profit network solution. You must include a picture (copy- paste ‘picture’) or screenshot of your Excel spreadsheet model BEFORE and AFTER you have run Excel Solver in your final submission.

3. The Operations Director has a longer term plan to centralise production of the ‘plate’ in one factory and increase capacity in that factory as required to satisfy the total forecast sales in all four wholesale warehouses. Is this a good idea? Make a final recommendation to the Operations Director that would optimise future profit.