

# Metal works case study

[Business](#)



Thus, It Is necessary to check all the possible alternatives for Improvement. Conclusively, the Mexican plant is a better choice, however, it is recommended to increase the planning horizon and reconsider the choices again. The Major assumptions for the simulation are as follows- 1 .

The steel cabinet production can be increased by 50% at a cost of \$1. 5 Million. Once the new equipment Is Installed the variable production cost will be decreased by \$0. 05 per steel cabinet. Some plant shutdown time Is Involved, but can be Ignored in the analysis.

. Production line for the safety box cabinet can be increased by 25% ATA cost \$ 75 Thousands. Variable cost will be decreased by \$ 0. 10. 3.

It will take a year to open the Mexican facility. Method of Analysis Analysis steps- 1. Simulate the base analysis as a reference frame. 2. Try to change the existing capacity of the warehouses.

3. Increase the no. Of the existing ware houses and run the optimization process. 4. Extend the setup of steel Cabinet and safety box separately.

5. Check If the above Individual cost scenarios are feasible. 6. Insider the lowest cost per scenario as an opportunity for further investment. 7. Extend the production in Iowa in 2010, check if it is feasible, and continue.

8. Check if the above scenario is feasible with each year. 9. Consider the lowest cost per scenario as an opportunity for further investment. 10.

Find the lowest cost in each of the scenario. 11. Consider the lowest cost per scenario as an opportunity for further Investment. 12. Run simulation using the Mexican plant. 13.

Compare all the results. 14. Make the final inference. The various costs under each scenario is as follows-

From the above table column 1 represents the cost under the expansion of steel cabinets. Column 2 represents cost under expanded steel boxes. Column 3 represents callousness expansion Tort Don ten previous contraltos.

Column 4 represents the Cost corresponding to the Mexican plant. The safety box capacity can be increased in the year 2011 however increasing the capacity in the Iowa facility is not enough to meet the demand in the year 2013. Hence, increasing the facility in the Iowa plant is not favorable as a long term investment. A new extension in Curare,

Mexico is also possible in the year 2011 as there is a minimum cost of 59 million in the year 2011, thus a setup investment of 5 million will still be below 65 million. Answers to the questions- Question I-should the capacity for file cabinets be expanded at the Iowa facility? Should the safety box capacity be expanded? If so, when? Or, should a new manufacturing facility be established in Curare? If so, when? Answer I-The capacity of file cabinets should not be increased in the Des Moines plant in the year 2010.

The safety box production capacity can't be increased either, in the year 2010, as it originally exceeds the \$65 million mark.

The safety box capacity can be increased in the consecutive year, I. E. 2011, yielding a total cost of \$62 million; however increasing the capacity in the Iowa facility is not enough to meet the demand in the year 2013. Hence, increasing the facility in the Iowa plant is not favorable as a long term investment. A new extension in Curare, Mexico is possible in the year 2011 as there is a minimum cost of 59 million in the year 2011, thus a setup investment of 5 million will still be below 65 million.

A new facility in Mexico will reduce the transportation cost.

The extended facility will be act as a strategic advantage, both in terms of meeting future demands and minimizing warehouse related cost. Question 2- Should new distribution centers be established? If so, how many? Answer 2- As per the simulation, for the year 2010, increasing the number of the warehouses is favorable. The number of new distribution centers should be 6, excluding the 2 preexisting facilities in Dover and in Iowa. Question 3-elf new distribution centers are going to be established, where should they be located? What size is appropriate for each facility?

Answer 3- The new distribution centers should be located in the following locations- 1. Reno, California 2.

Los Angles, California 3. Phoenix, Arizona 4. Chattanooga 5. Orlando, Florida 6. Dallas, Texas The sizes of all the existing warehouses in terms of volume of inventory is listed as follows- 1 . Reno- 341, 847 2.

LOS Angles- 238, 780 3. Phoenix-247, 654 4. Chattanooga-249, 308 5. Orlando-244, 692 6. Des Monies-769, 170 7.

Dover-1285, 000 8. Dallas-248, 647 The above figure shows the distribution of the warehouses without the extension in ten Mexican plant.

Quietest 4-How snouts among the distribution centers? Can plants prop cotton De allocated Answer 4 - The distribution of produced goods should be on the basis of the demand concentration. The greater the demand concentration, the greater should be the capacity of the distribution center. Hence, as per the availability, the capacity of each warehouse should be condign to the demand and the distance of the customer. Question 5- What issues did you take into account when answering the previous questions? What additional issues need to be taken into consideration?

How do your espouses account for the long-term future, I.

E. Beyond 2012? Answer 5- The most challenging question was the first question, there is practically no possible answer for the year 2010, however, there is a possibility of extending the facility in Des Monies for steel boxes and cabinets for the year 2012, by investing in the year 2011 as the net investment of 2. 2 million is required for extension and the total cost for 2011 is 62 million, however, it was found that the demand will exceed the production capacity if the Iowa plant is extended.

Thus, it was necessary to change our strategy, ND consider the opening of a new facility, corresponding to the year 2011. Most of the answers were first formulated by considering the non-profitability of the previous approach in long term. Question 6-After visiting Curare, Mexico, the potential location for a new manufacturing facility; you receive additional Information about transportation taxes in Mexico.

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It turns out that if you decide to open a facility in Curare, each truck crossing the border into the United States will be taxed \$50.

How would you modify the analysis of the case? No need to do this analysis: Just describe how you would take additional taxation into consideration.

Answer 6- From the previous results, it is impossible to meet the future demand from 2013 onwards, by just expanding the facility in Iowa. Thus, in any case the decision of opening a new facility in Mexico will remain firm, irrespective of the change in the taxation policy. Question 7- Keep in mind that you need to compare baseline total costs (I.

E. , the total cost of the current network) against the total cost of other alternatives.

There are quite a few alternative scenarios that can be modeled as available options center on the number of warehouses, when warehouses should be opened, the size of these facilities, and capacity expansion. Cost decreases should ultimately be compared to capacity expansion expenditures? Answer 7- The baseline comparisons are as follows- represents simultaneous expansion for both the previous conditions. Column 4 represents the Cost corresponding to the Mexican plant.

Other Answers and Recommendations- The current simulation had a planning horizon of 3 years, including the setup cost and the setup time that was 1 year long.

Hence, it was difficult to have a well-learned execution. Some scenarios had feasible solutions; however, in terms of longevity, some options were Teasel

Tort 1 2 years. Hence, It was Doolittle to conclude upon a scenario, whether the decision was feasible or not in a broader sense. Some infeasible scenarios might be feasible in long term, with an initial loss.

Thus, it is important to consider all the scenarios in a broader view. As a conclusion, I would suggest increasing the planning horizon and considering all the possibilities such as tax policies for the Mexican plant and compare the scenario again.