**Conclusion**

* **Is it profitable to change the current decentralized distribution network to one with a centralized warehouse (without considering the redesign costs)?**

As seen in the results, having a centralized warehouse means lower storage costs, delivery time and throughput time, and so it would be profitable. Even though transportation costs and time, and CO2 emissions are higher; the customer would receive the product earlier with a centralized warehouse and the total costs would be lower for the company. Thus, the company would, in the long run, find a higher profit from changing the storage distribution.

* **Considering the redesign costs, what is the breakeven point?**

The breakeven point is the time it would take for the company to get the money spent on redesigning back and making a profit out of the change of distribution.

The total cost for the centralized warehouse is of 118,167.93 and the redesign costs 36,546.34 which means that for the first year, the total cost the company will have will be of 154,714.27. Which compared to the 132,657.85 of the decentralized distribution, means the company will be losing more money for the first year. The difference between them without the redesign cost is of 14,489.92, which would be the profit they would make after the breakeven point.

We calculated the breakeven point by calculating the difference in cost between both distributions, and then dividing the amount the redesigning costs by it. The final number is 2.52 years (154,727.27-132,657.85= 14,489.92, 36,546.34/14,489.92= 2.52 years).

* **What is your conclusion regarding the logistics performance (delivery time, costs, and total CO2 emissions) of the distribution network scenarios?**

Regarding logistics performance, we can consider all scenarios. The lead time for the decentralized distribution center is 3.39 days, while the lead time for the centralized distribution center is 2.67 days, which is about 0.72 days less. When considering the total cost, as mentioned in the first question, the total cost of centralized DC is much lower. Note that the CO2 emission of decentralized DC inbound transportation is 24.02 tons, which is 0.91 tons more than centralized transportation. Among outbound transportation emissions, centralized distribution centers emit 6.61 tons, 3.19 tons more than decentralized distribution centers. In this sense, we can see that decentralized DC networks have proven to be effective. However, general logistics operations tend to move towards centralized distribution networks.

* **Considering the trade-off of logistics targets, what will your answer to XYZ Company? Which distribution network should XYZ utilize?**

The network distribution they must use is centralized because the overall costs are lower since it would reduce storage costs as well as incoming transportation costs. The issue that needs to be taken into consideration is that the CO2 emissions are lower in the decentralized distribution network. Therefore, centralized distribution is the best option when looking at the costs even though they must work on their CO2 emissions.