# Discussion Questions

1. How do the location and size of warehouses affect the performance of a firm such as Amazon.com? What factors should Amazon.com take into account when making this decision?

The location and size of Amazon’s warehouses have a direct bearing on how responsive and efficient they can be. At one time Amazon ran their on-line bookstore out of one warehouse in Seattle; this warehouse was small by today’s standards and was unable to keep up with peak demand. Amazon has since added other geographically distributed warehouses that hold the items with steadier demand. The dispersion of warehouses allows Amazon to ship from closer to the customers and the stocking of items with more even demand allows for a higher service level at a reasonable cost.

Amazon should consider what regions are underserved by the current network of warehouses and where it is most economical to locate the next warehouse, effectively balancing their efficiency and responsiveness with their strategy.

1. How do import duties and exchange rates affect the location decision in a supply chain?

Tariffs refer to any duties that must be paid when products are moved across international, state, or city boundaries. If a tariff is excessive, it provides a strong disincentive to do business across borders with entities in that area. The classic workaround to a high tariff is adding a location inside the area. Some regions have developed trade agreements that limit or eliminate the tariff on goods.

Exchange rates specify how much one currency is worth in terms of another. As one currency gains against another, it may be beneficial to add shift production to the area using the devalued currency. This makes the goods more affordable for the population. Companies with flexible production capabilities can shift some production from area to area depending on the buying power of local markets.

1. Do you think that a significant reduction in fuel costs will affect the global supply chain networks?

Yes, a significant reduction in fuel costs will eventually lower overall transportation costs. In that case, more companies will be able to select facilities at a location farther away from customers because of the reduced transportation fees. Companies will adjust the facilities’ location by weighting these reductions in costs against the associated changed costs in inventory and infrastructure.

1. Amazon.com has built new warehouses as it has grown. How does this change affect various cost and response times in the Amazon.com supply chain?

Logistics and facility costs incurred within a supply chain change as the number of facilities, their location, and capacity allocation is changed. As Amazon has added warehouses, their logistics, inventory and facility costs have changed. An increased number of warehouses increases that fixed cost but can be exploited to reduce transportation costs. These potentially fall if the warehouses are spread throughout a distribution area, which increases responsiveness at a similar cost or maintains responsiveness at a reduced cost. Inventory costs also change with an increased number of warehouses; Amazon is holding more total inventory and can take advantage of pooling to reduce quantities of some items.

1. McMaster-Carr sells maintenance, repair, and operations equipment from five warehouses in the United States. WW Grainger sells products from more than 350 retail locations, supported by several warehouses. In both cases, customers place orders using the Web or on the phone. Discuss the pros and cons of the two strategies.

WW Grainger has the more responsive network; a customer with a critical repair need can drive to a local retail location to pick up the necessary part. McMaster Carr’s network is less responsive; critical supplies would be scheduled for overnight delivery in all likelihood. WW Grainger has the greater facility cost since it has more locations, although the retail facilities provide a presence that doubles as a marketing tool not enjoyed by McMaster Carr. McMaster Carr’s facility expense is much lower and their network model shifts the transportation cost more fully to the customer. A WW Grainger customer travels the last mile to pick up an order, but Grainger must ship from their warehouse to the retail locations.

1. Consider a firm such as Dell, with very few production facilities worldwide. List the pros and cons of this approach and why it may or may not be suitable for the computer industry.

The advantage for Dell’s network design is lower facility costs; they can locate in just enough countries to avoid tariffs and mitigate some of their exchange rate and demand risk. The disadvantage for Dell is the lack of responsiveness this adds to their system. A customer has no expectation of zero flow time, so they know as they enter the transaction that they must wait for their PC. Shipping from one of the production facilities adds to the delay, which is highly visible on Dell’s or the package carrier’s web site. The shipping costs might also be a concern for some customers, but the value to shipping cost ratio is so high that these costs seem like small potatoes in comparison to the total invoice.

1. Consider a firm such as Ford, with more than 150 facilities worldwide. List the pros and cons of having many facilities and why it may or may not be suitable for the automobile industry.

Automakers often use a multiplant strategy to create server facilities. These server facilities provide product for the market where they are located, thereby taking advantage of tax incentives, local content requirements, tariff barriers, and high logistics costs. This can be a good strategy if market demand exists for your product; when demand drops, the producer is left with expensive excess capacity. If the facilities are flexible, production of popular models can continue to prepare product for export. If facilities are inflexible or all sales are flat, then the producer must bear the cost or shed assets.