Designing the Supply Chain for CanDi

Good morning!

Thank you for signing the contract to design the Supply Chain for CanDi! We are looking forward to your design services.

Company background

CanDi (**Can**dy**Di**stributor) is a well-funded (private equity-backed) company recently founded to distribute European soft candies in the United States. We want to finally bring some quality sweets into this country for children and adults to enjoy. Our founder identified this unserved market opportunity after she tasted a Twizzler while on a vacation in the US.

CanDi has been a wild success in the US New England states. CanDi has imported their candy from Europe (through Amsterdam, shipped into New York) for 2 years now and used expensive 3rd party distributors to ship the product to the warehouses of the retailers. The market has stabilized and volumes are high enough that CanDi has decided to build their own supply chain infrastructure.

The products

CanDi sells 110 different candy SKUs. Obviously, their volume varies widely, from hot sellers such as sour gummy worms (which are consumed in large quantities by even the most undiscerning Americans), to salt-covered liquorice pieces, which really are only bought by true connoisseurs (mostly ex-pats from Sweden and Germany).

Careful analysis by the sales team has shown that the products group into 5 product segments, in which the products pretty much behave identically – same demand, same volatility, everything.

The potential supply chain

CanDi plans their Supply Chain to consist at minimum of a single inbound distribution center (DC) near the port in New York. CanDi is speculating that potentially more DCs in the markets to facilitate distribution might be a good idea.

3 locations in the New England states (in Connecticut near Hartford, in Massachusetts near Boston and in Maine near Augusta) have been identified to serve as possible sites. They are well situated, and *we are not looking for you to identify additional sites or alternate locations*.

The deliverable

You have signed up to design a detailed Supply Chain for CanDi. This involves the structural design and the approach to inventory management

Structural design
- Where should we have warehouses?
- How should which product flow from arrival by ship to customer?
- What methods of transportation should we use?

Detailed operational design
- Where is each SKU stocked and what are the parameters?
- How should planning and replenishment work?

You will be required to present your solution to the CanDi management team. The presentation should be no more than 8 pages – fewer pages with greater clarity are better. We expect you not only present your solution, but also to justify the choices you made, because the CanDi managers have strongly held (but wildly different) opinions.

You will soon receive detailed data on our products, customers, demand as well as the locations of the potential warehouses, handling and shipping costs.

This should contain everything you need, but you are welcome to ask clarifying questions – we will give you multiple opportunities to do so.

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The final presentation will be on **DATE OF FINAL CLASS**, but you are required to send in your presentation at least 48 hours before the presentation.

Backup information

Product characteristics

CanDi's products are packaged in soft bags of 8 oz each. They are sold in boxes of 40 only (no single bags). 30 of these boxes stack together to make a full pallet. Apart from the printing on the box, all products have these identical physical characteristics.

Also, all products have the same cost - $0.80 per bag.

Transportation

There are multiple theoretical ways in which you can ship CanDi's product. Obviously you can UPS/FedEx a single box (2 are too heavy), you can ship partial or full pallets with a LTL (less-than-truckload) carrier at a fixed price per pallet, and of course you can ship full truckloads (FTL) either on your own, leased truck or using a 3PL (3rd party logistics carrier) for a point-to-point delivery. Please note that at most 20 pallets fit on a truck, because we cannot stack pallets on such a quality product.

Distribution centers (DCs)

As described, the company has decided on at least a single warehouse (DC) near the port in New York. It will own and operate this facility. It also can lease warehouses in Massachusetts (MA, near Boston), Connecticut (CT, near Hartford) and Maine (ME, near Augusta) – please see the map.

CanDi would not own these 3 warehouses, but instead lease them from a logistics provider, including all their labor.

Please note again that your job is not to come up with alternate locations. You can only decide whether to use a location or not.

Customer deliveries

Only extreme high-volume products (e.g., Sodas) are shipped directly to retail stores. Instead, big grocery chains operate DCs that take in all products in larger volumes, then split and mix together whatever a store needs across all products. This limits the number of deliveries the store gets and is much more cost effective on transportation. Small chains and individual grocery stores buy their product from distributors that operate similar DCs.
CanDi delivers to these customer DCs.

Because many providers ship to these DCs, vendors are usually given strict, narrow time frames for full trucks to arrive ('Tuesday between 6-615am'). CanDi is too small to do anything but agree to these conditions.
For smaller deliveries (LTL and UPS), these windows are usually waived or coordinated by the logistics companies.

If we deliver directly to these customer DCs from NY, we have to take care of this coordination. If we ship from one of the potential leased DCs up North, the logistics provider will execute these (but of course charge us for it).

For all practical purposes, a customer will place one order per week. They expect the delivery within 24 hours.

Demand

Many of CanDi's SKUs behave rather similarly. For ease of your task, they are therefore grouped into *segments*, and you can assume that each SKU within that group has identical characteristics. In short, you can look at a single individual SKU per segment and do all your math with that.
But do not forget that for inventory, transportation volumes, costs, etc., you need to multiply these values by the number of SKUs in that segment.

In terms of demand, while it indeed sells in boxes of 40 only, you can nevertheless assume normally distributed demand. Furthermore, we assume that all customers in a region behave identically for any given SKU.