

---

## Case study: Peak Nutrition Inc

---



Peak Nutrition, Inc. (PNI) offers a line of premium sports recovery drinks. Its drinks are made from all-natural fruit juices that are supplemented with protein, creatine, vitamins, and minerals. Each flavor is offered in both a 12- and 20-ounce bottle. Eighty percent of PNI's sales are to two national health food chains, and the remaining 20 percent are to independent health food stores and online retailers.

PNI has a single production and bottling line, which has sufficient capacity to meet its current demand. Setting up the production line to produce a particular flavor requires an entire 8-hour shift. Most of the setup time is related to flushing out the equipment in order to not contaminate the new flavor to be produced with the flavor that was last produced. Given the long setup times, the production and bottling lines are dedicated to producing a single flavor for an entire week. The typical production schedule involves setting up the line on Monday, producing 12-ounce bottles on Tuesday and Wednesday, and producing 20-ounce bottles on Thursday and Friday. The plastic bottles and labels are purchased from outside suppliers. There is a one-week lead time for both the bottles and labels. PNI maintains a four-week inventory of plastic bottles and orders labels three weeks before they are needed. Changing over the bottling line from 12-ounce to 20-ounce bottles requires about an hour and a half, which also includes changing the labels.

Since each flavor is produced every six weeks, PNI historically produced an eight-week supply for each flavor to provide a safety net in the event demand exceeded its forecasts. Despite having an extra two weeks of inventory, PNI often experienced stockouts. Given the problem with stockouts, PNI recently acquired additional warehouse space and now plans to produce 10 weeks of demand during each production run. It is expected that producing a 10-week supply may result in the need for a small amount of overtime in some weeks. PNI has limited communication with its customers, primarily consisting of the purchase orders it receives from its customers and the invoices and products it sends to them. PNI's goal is to meet all orders from its inventory. In this way, it is able to provide its customers with a one-week lead time. When the inventory level is insufficient to meet the quantity ordered, lead times increase to an average of two to three weeks, depending on how soon the product is next scheduled for production. Once last year, PNI was stocked out of a flavor for almost four weeks.

At the end of each quarter, PNI offers its customers discounts for orders above certain order quantity thresholds. The purpose of the discounts is to provide retailers with an incentive to put the sports drinks on sale and help boost quarterly sales. As a result of these incentives, PNI's sales tend to be 5 to 10 times higher in the last two weeks of the quarter compared to other times. In anticipation of the increase in sales, PNI builds up its inventory. However, while on



average it has plenty of inventory across all flavors, it often experiences mismatches in its available supply and demand for specific flavors. In other words, it often finds that it has too much inventory of some flavors and too little of other flavors.

### Questions

1. What concerns do you have about PNI's supply chain management practices?
2. What would you recommend PNI do to address your concerns?
3. Do you have any concerns about the way PNI determines its level of safety stock?
4. Should PNI focus on enhancing the efficiency or responsiveness of its supply chain? Why?

Case updated and adapted from: Meredith, Jack R. and Shafer, Scott M (2015), Operations Management for MBAs, 6th Edition: Wiley Publishing.