

Unit 7 Assignment: Mega Save Inventory Levels

Due: 11:59 p.m. EST Sunday of Unit 7

Points: 100

Overview:

In this assignment, you will examine a case study of a large retail grocery chain's management of its stock of a high-volume product and address its EOQ order, appropriate safety stock size, and the influence of outlier data.

Instructions:

Mega-Save is a large retail grocery chain in Rhode Island. It stocks some of its retail stores from a regional distribution warehouse in a Providence suburb, handling a variety of dry, refrigerated, and frozen food items there. These items are ordered and received from vendors, then shipped out to retail stores that place their own orders directly with the distribution warehouse. Both the retail stores and the warehouse run 24/7/360.

One high-volume item is pre-packaged boneless skinless chicken breasts. During 2016, in the United States per capita consumption of chicken was over 90 pounds according to the National Chicken Council. The Council further says Americans devour 1.25 billion chicken wings during the Super Bowl alone. Thus, chicken is a critical item for Mega-Save and every other grocery retailer, making shopper availability extremely important. A large safety stock of frozen chicken breasts is kept at the Mega-Save warehouse. However, management is concerned that the safety stock held may be too large, and needs assistance setting a proper level.

Mega-Save receives this product frozen from a vendor and typically holds it a short time at the warehouse before shipping it on to retail locations. There the individual packages are thawed in display cases for customer purchases. To better understand the safety stock problem, the manager of the Providence warehouse has pulled the following data on recent weekly orders for chicken breast and the order lead times of the vendor.

Historical Demand (Weekly pounds)

383,577	355,592	440,888	579,286
445,042	399,276	436,796	450,752
471,787	393,401	418,193	438,394
393,829	504,114	436,510	446,084
436,235	365,483	653,094	431,553
469,081	531,049	409,288	440,592
381,845	424,306	448,167	416,391
422,810	525,498	678,805	471,020
432,367	459,687	436,868	395,192
388,689	527,324	435,946	452,301

Historical Lead Times (Days)

5.7	5.3	5.7	7.7	4.6
4.7	4.3	5.6	4.4	5.2
6.2	4.2	7.3	6.5	4.5
4.3	5	5.9	5.1	5.6
7.2	5.2	7.5	7.9	6.2
7.7	3.9	5.5	7.8	6.9
3.8	5.4	19.2	5.5	5.7
3.9	5.6	6.9	6.2	8.2
7.1	6.1	8.4	5.6	4.3
4.9	5.6	4.6	5.8	3.9

Frozen chicken breasts are delivered to the Providence facility in 40-pound cases by refrigerated truck. Ordering costs of \$7500 are high owing mostly to the cost of transporting the frozen product as well as the time and labor to unload trucks. The cases are held in a large industrial freezer and ultimately shipped out to retail stores in the same cases. Although difficult to estimate accurately, Mega-Save assigns an \$80 annual cost for holding a case of frozen chicken breasts at the warehouse for one year. (Of course, this is a theoretical cost since the time chicken is typically held is not this long.)

1. Calculate the warehouse's appropriate Economic Order Quantity (EOQ) in cases and approximately how many times per year orders will be placed with its vendor.
2. Determine the amount of safety stock (cases or pounds) that should be held at the warehouse to support a 95% service level to the downstream retail stores.

3. The sample data shows one very long chicken shipment lead time resulting from very inclement weather. Mega-Save's supply chain managers are discussing whether that particular shipment should be dropped from the data since it represents a very extreme case. If this shipment is dropped from the data what impact would that have on the projected level of safety stock needed and the inventory holding costs?

Requirements:

- Please follows APA guidelines as appropriate for the narrative portions of your answers (proper margins, double-spaced text in 12-point font). If you have Excel or other calculation exhibits, make sure they are legible and of readable size.
- Use APA citation formats and a Reference / Works Cited page when necessary
- Include a cover page with your name, assignment title, course, and date
- Submitted assignment should be no more than five (5) pages maximum in length, excluding cover page and references/works cited page.

Evaluation Rubric

CRITERIA	Deficient	Development Needed	Proficient	Exemplary
	<i>0 points</i>	<i>1 – 9 points</i>	<i>10 – 14 points</i>	<i>15 points</i>
EOQ & Annual Order Frequency	No answer.	Underdeveloped section, unclear reasoning, incorrect answers behind the decision.	Mostly addresses the amount of EOQ with accurate justifications, some details lacking.	Thoroughly addresses the amount of EOQ with accurate justifications correct approximate annual frequency, no details lacking.
	<i>0 points</i>	<i>1 – 25 points</i>	<i>26 – 47 points</i>	<i>48 - 50 points</i>
Required Warehouse Safety Stock to Support 95% Service Level to Downstream Retail Stores	No answer.	Underdeveloped section, unclear reasoning, incorrect answers behind the decision.	Mostly addresses the amount of safety stock with accurate justifications, some details were lacking.	Thoroughly addresses the amount of safety stock with accurate justifications, no details were lacking.
	<i>0 points</i>	<i>1 – 11 points</i>	<i>12 – 22 points</i>	<i>23 - 25 points</i>
Outlier Data Impacts	No answer	Impact is not clearly presented, and/or little evidence of critical thinking displayed.	Impact is mostly accurate and presented with solid analysis and critical thinking displayed.	Impact is accurate and presented with solid analysis and critical thinking displayed.
	<i>0 – 5 points</i>	<i>6 – 7 points</i>	<i>8 – 9 points</i>	<i>10 points</i>
Clear and Professional Format Presentation & Writing	Errors impede professional presentation; guidelines not followed.	Significant errors that do not impede professional presentation.	Minor errors that do not impede professional presentation.	Writing and calculation formats are clear, professional, APA compliant in for text , and error free.