

# Food Supply Optimization Report

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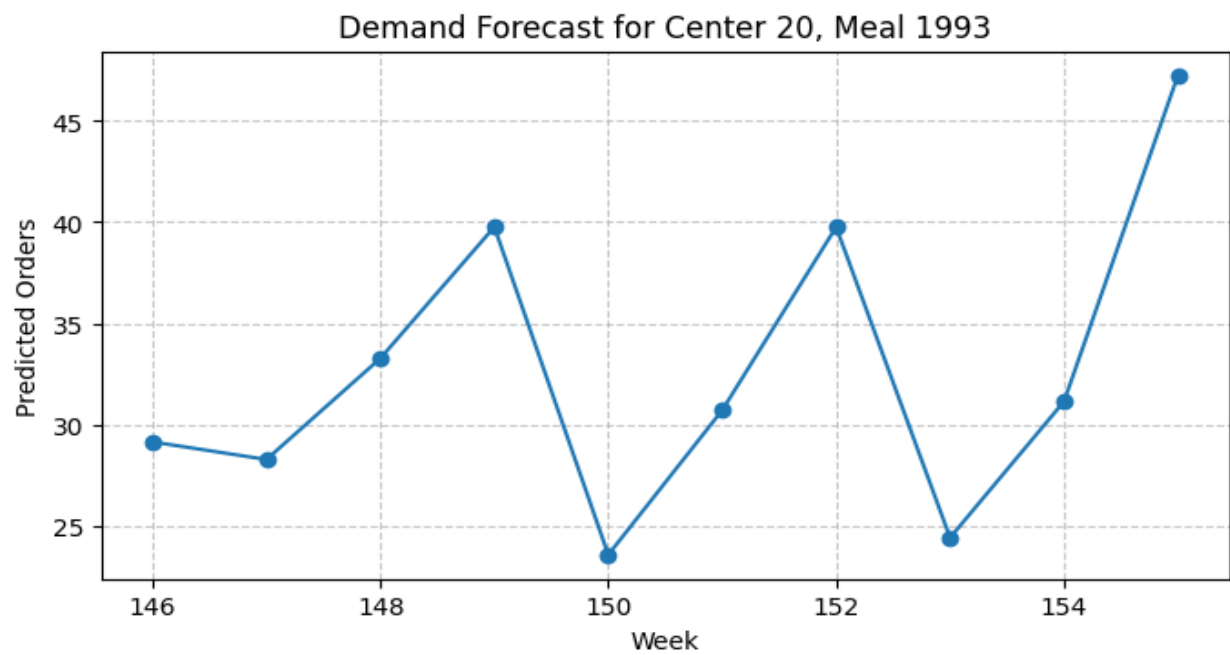
## Demand Forecast

This report provides a comprehensive analysis of demand forecasts and supply chain optimization for food distribution centers. The forecast covers 10 weeks, 3 centers, and 4 meal types.

### Forecast Sample Data

week	center_id	meal_id	predicted_demand
146.0	10.0	1885.0	89.905914
147.0	10.0	1885.0	68.95378
148.0	10.0	1885.0	46.377384
149.0	10.0	1885.0	33.631844
150.0	10.0	1885.0	31.546558
151.0	10.0	1885.0	33.508003
152.0	10.0	1885.0	31.950966
153.0	10.0	1885.0	43.04068
154.0	10.0	1885.0	31.370892
155.0	10.0	1885.0	31.301647

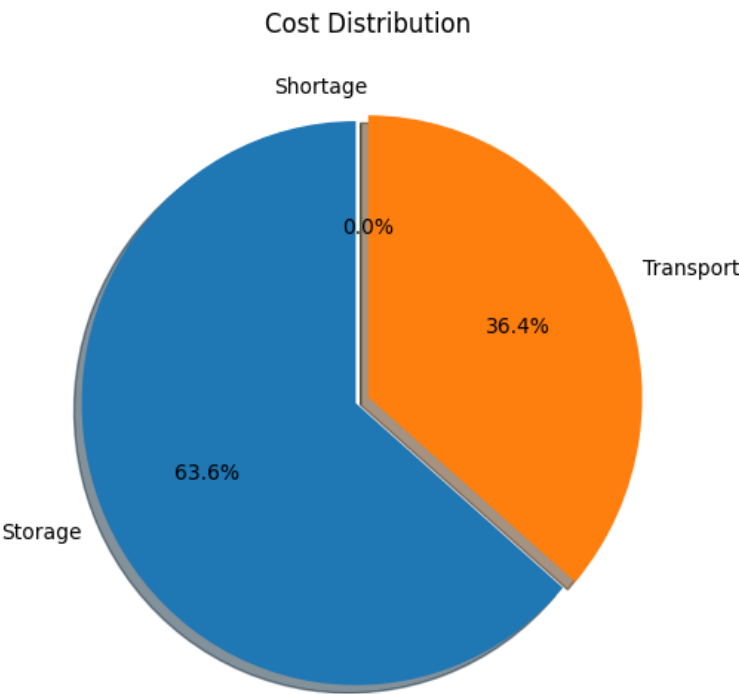
### Forecast Visualization



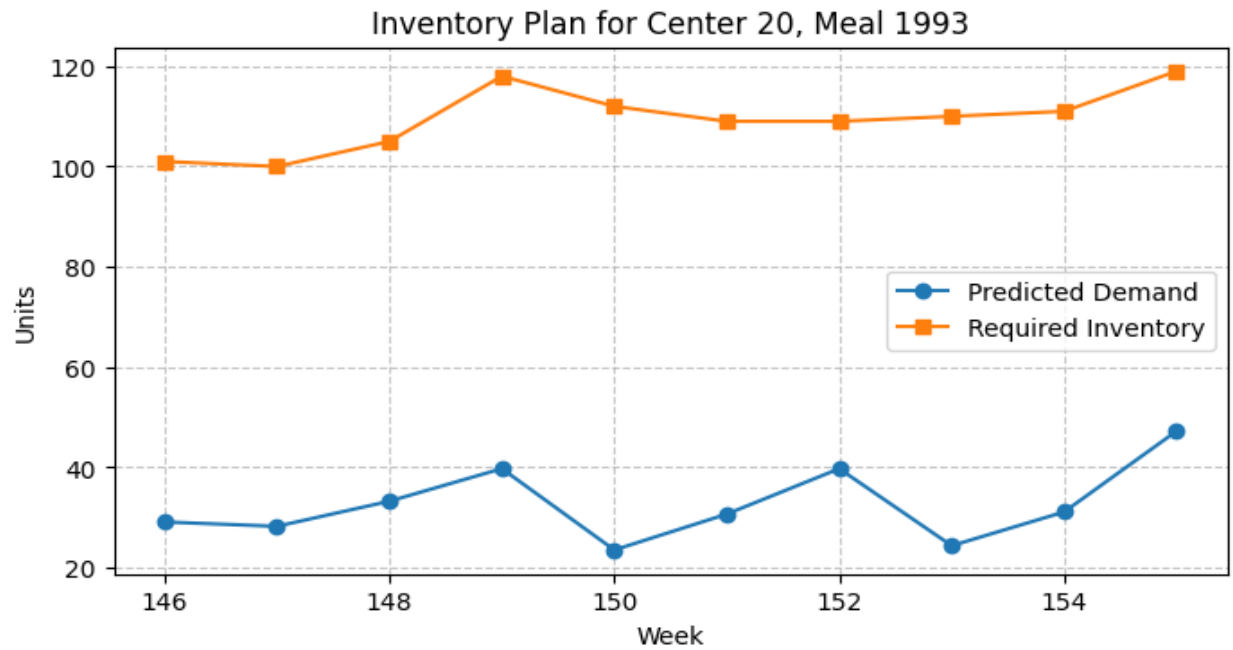
# Supply Chain Optimization

The supply chain optimization achieves a service level of 100.00% with a total required inventory of 14,689 units. The total cost is \$80,789.50 with an average weekly cost of \$8,078.95.

## Cost Distribution



## Inventory Plan for Center 20, Meal 1993



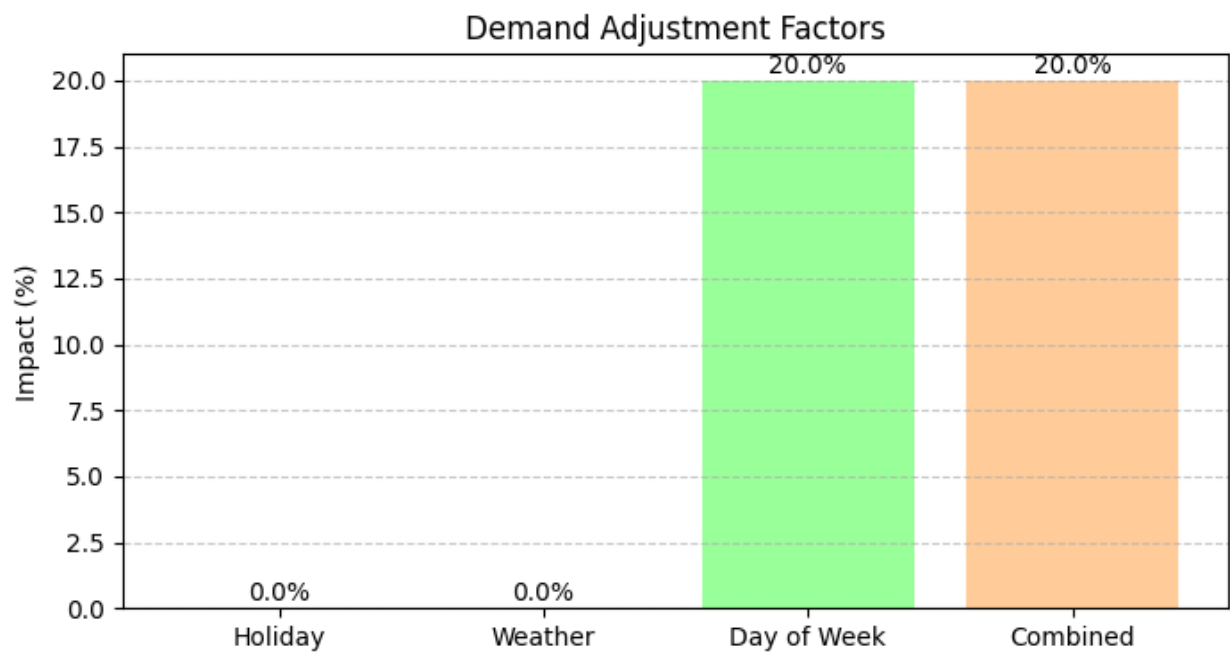
### Detailed Inventory Plan (Sample)

week	predicted_demand	base_inventory	lead_time_demand	final_inventory	total_cost
146.0	29.133236	32.0465596	29.133236	101.0	555.5
147.0	28.26461	31.091071000000003	28.698923	100.0	550.0
148.0	33.26953	36.596483000000006	30.222458666666668	105.0	577.5
149.0	39.76597	43.742567000000001	33.766703333333334	118.0	649.0
150.0	23.552208	25.9074288	32.195902666666667	112.0	616.0
151.0	30.701237	33.7713607	31.339805000000002	109.0	599.5
152.0	39.759342	43.7352762	31.337595666666667	109.0	599.5
153.0	24.397982	26.8377802	31.619520333333327	110.0	605.0
154.0	31.134832	34.2483152	31.764051999999996	111.0	610.5
155.0	47.26311	51.989421	34.265308	119.0	654.5

# Date-Specific Forecast

Forecast for Saturday, May 17, 2025 (Center 20, Meal 1993) Baseline Demand: 32.72 units Adjustment Factor: 1.20x  
Adjusted Demand: 39.27 units (20.0%)

## Demand Adjustment Factors



## Adjustment Factors Breakdown

Factor	Impact (%)	Multiplier
Holiday	0.0%	1.00x
Weather	0.0%	1.00x
Day of Week	20.0%	1.20x
Combined	20.0%	1.20x