

Food Supply Optimization Report

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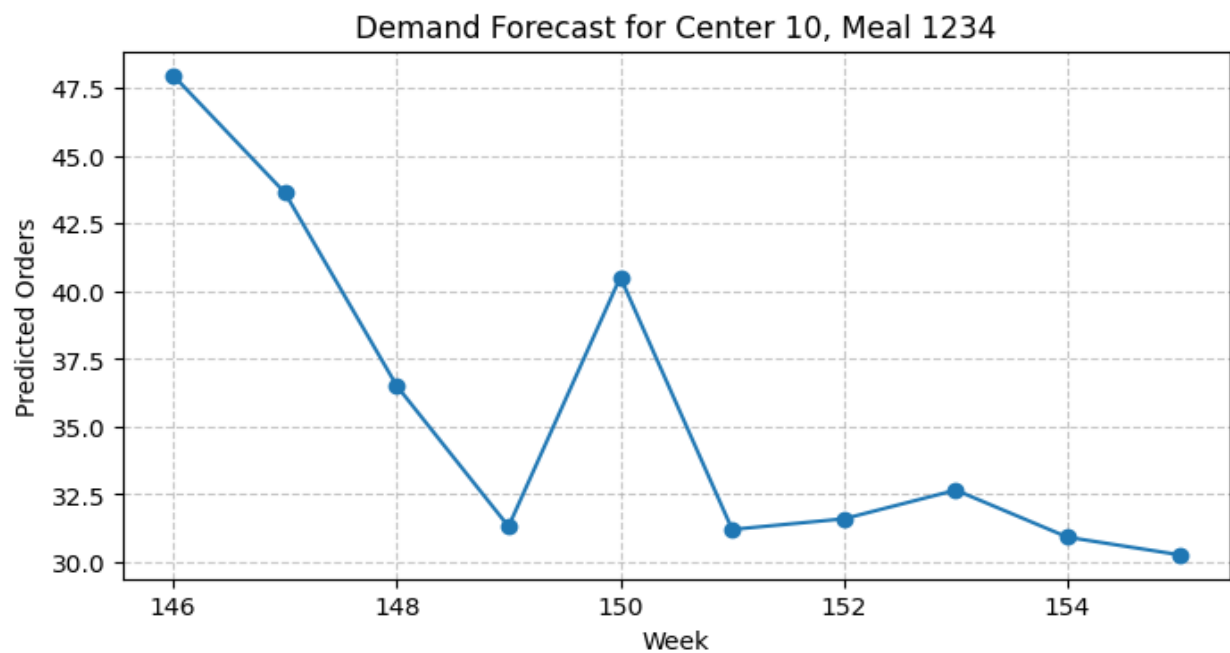
Demand Forecast

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

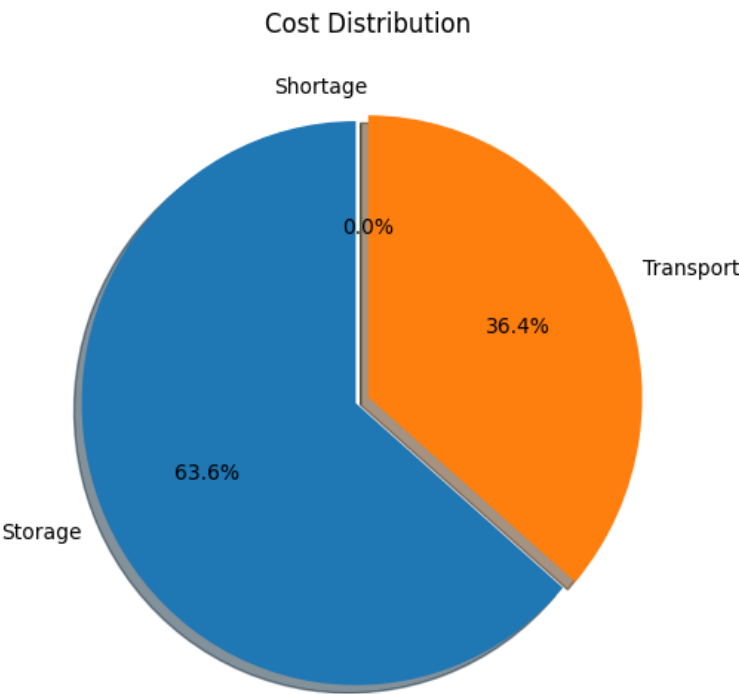
Forecast Visualization



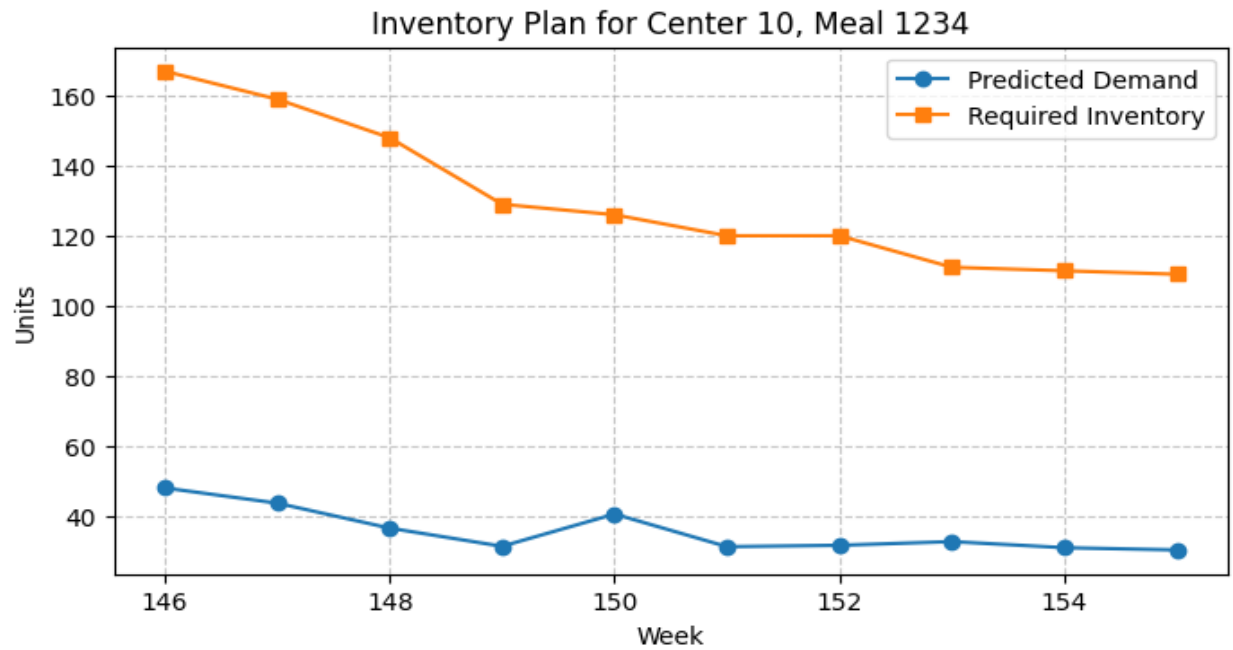
Supply Chain Optimization

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 10, Meal 1234



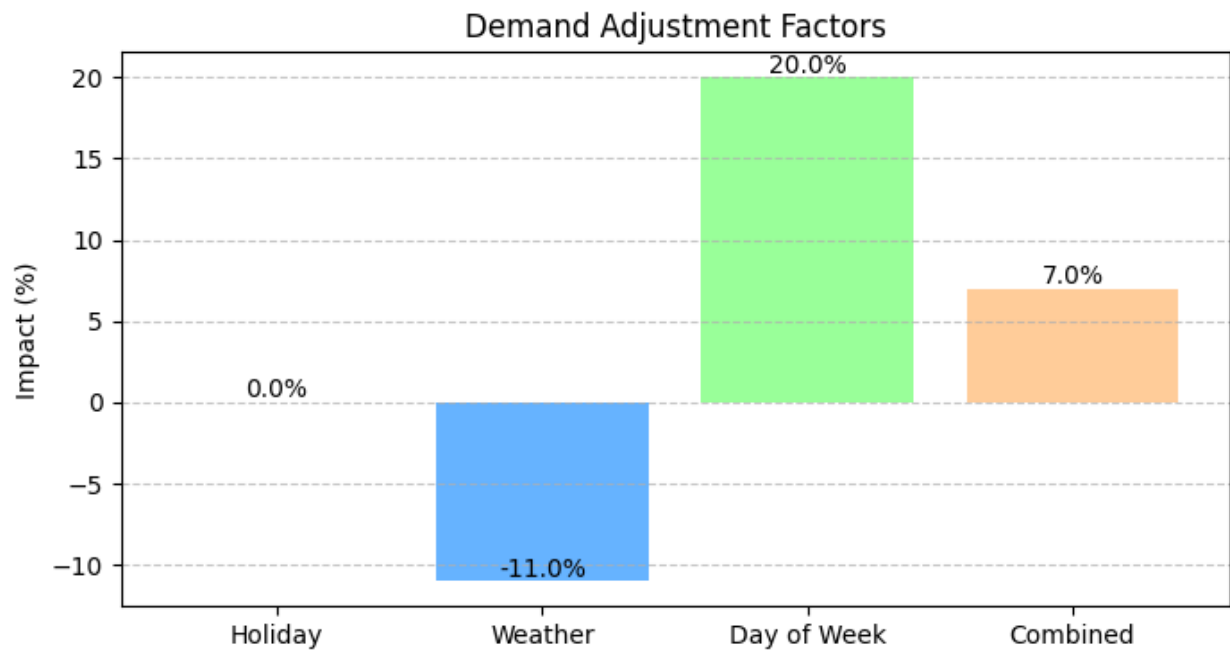
Detailed Inventory Plan (Sample)

week	predicted_demand	base_inventory	lead_time_demand	final_inventory	total_cost
146.0	47.980125	52.77813750000001	47.980125	167.0	918.5
147.0	43.641167	48.00528370000001	45.810646000000006	159.0	874.5
148.0	36.50841	40.159251	42.70990066666667	148.0	814.0
149.0	31.31448	34.445928	37.154685666666666	129.0	709.5
150.0	40.525166	44.5776826	36.11601866666667	126.0	693.0
151.0	31.2052	34.325720000000004	34.348282	120.0	660.0
152.0	31.598255	34.758080500000005	34.442873666666664	120.0	660.0
153.0	32.65791	35.923701	31.820455	111.0	610.5
154.0	30.918736	34.0106096	31.724966999999996	110.0	605.0
155.0	30.269306	33.2962366	31.281983999999998	109.0	599.5

Date-Specific Forecast

Forecast for Sunday, May 11, 2025 (Center 10, Meal 1234) Baseline Demand: 35.66 units Adjustment Factor: 1.07x
Adjusted Demand: 38.16 units (7.0%)

Demand Adjustment Factors



Adjustment Factors Breakdown

Factor	Impact (%)	Multiplier
Holiday	0.0%	1.00x
Weather	-11.0%	0.89x
Day of Week	20.0%	1.20x
Combined	7.0%	1.07x