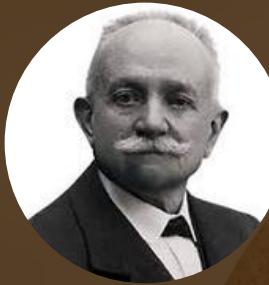


Redesigning The Lavazza Logistics Network

A2 - TEAM FINAL PROJECT
TEAM 5-MBAN1



Brief History of Lavazza



Founder: Luigi Lavazza

Founded: 1895 in Turin (Italy)

Origins: Began as a small grocery store

Achievement: Leader in coffee blending

International Expansion: Premium coffee market leader

Business Problem

- **Increased Competition**

Emerging coffee trends

New brands entering the market

- **Consumer Demand & Expectations:**

Growing demand for sustainable practices

Expectation for eco-friendly products

- **Balancing Premium Positioning:**

Aligning with premium market positioning

Adapt to evolving customer preferences

- **Challenges:**

E-commerce growth

Marketing strategies and brand visibility

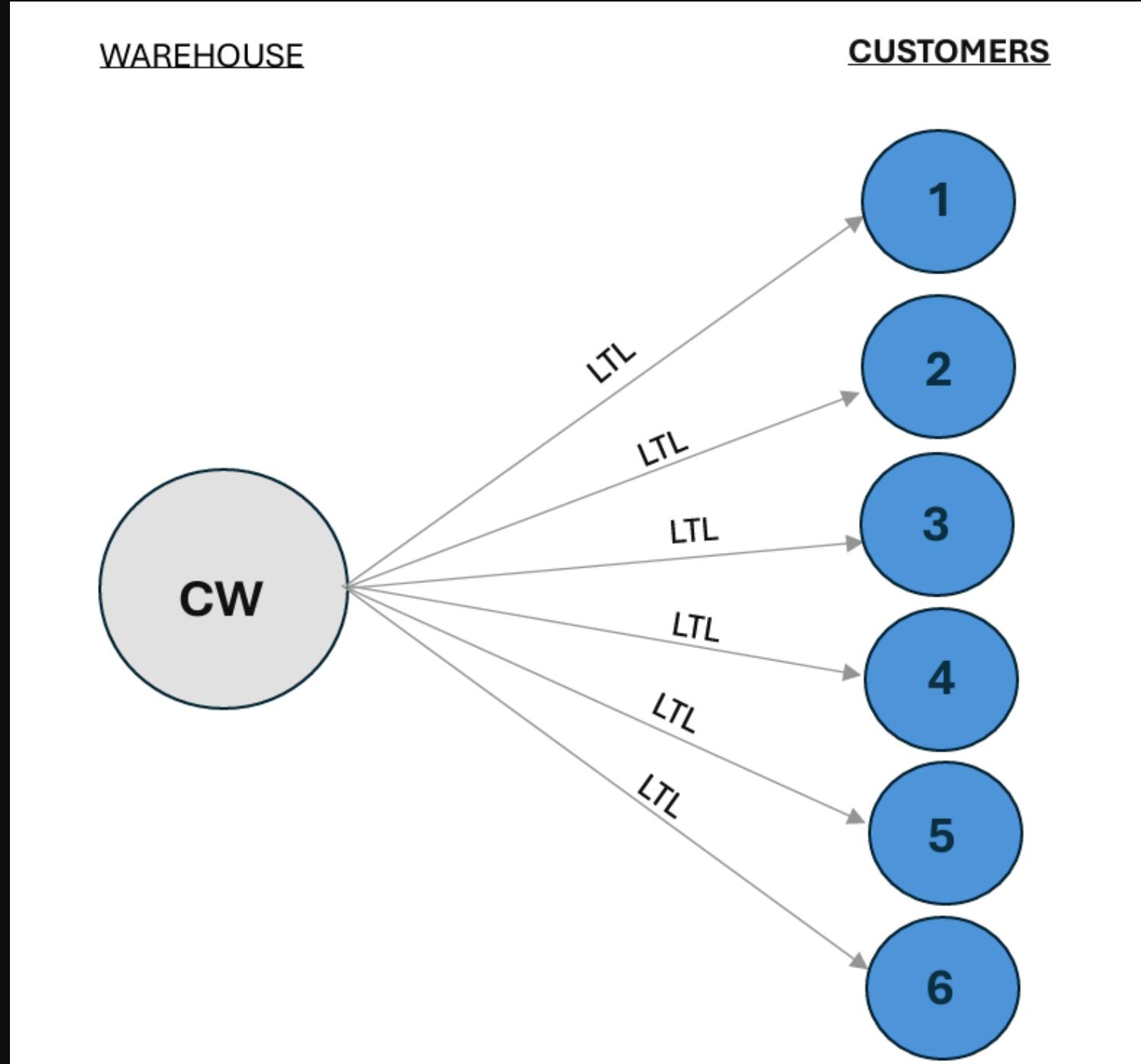
Current Logistics of Lavazza



Challenges and Inefficiencies:

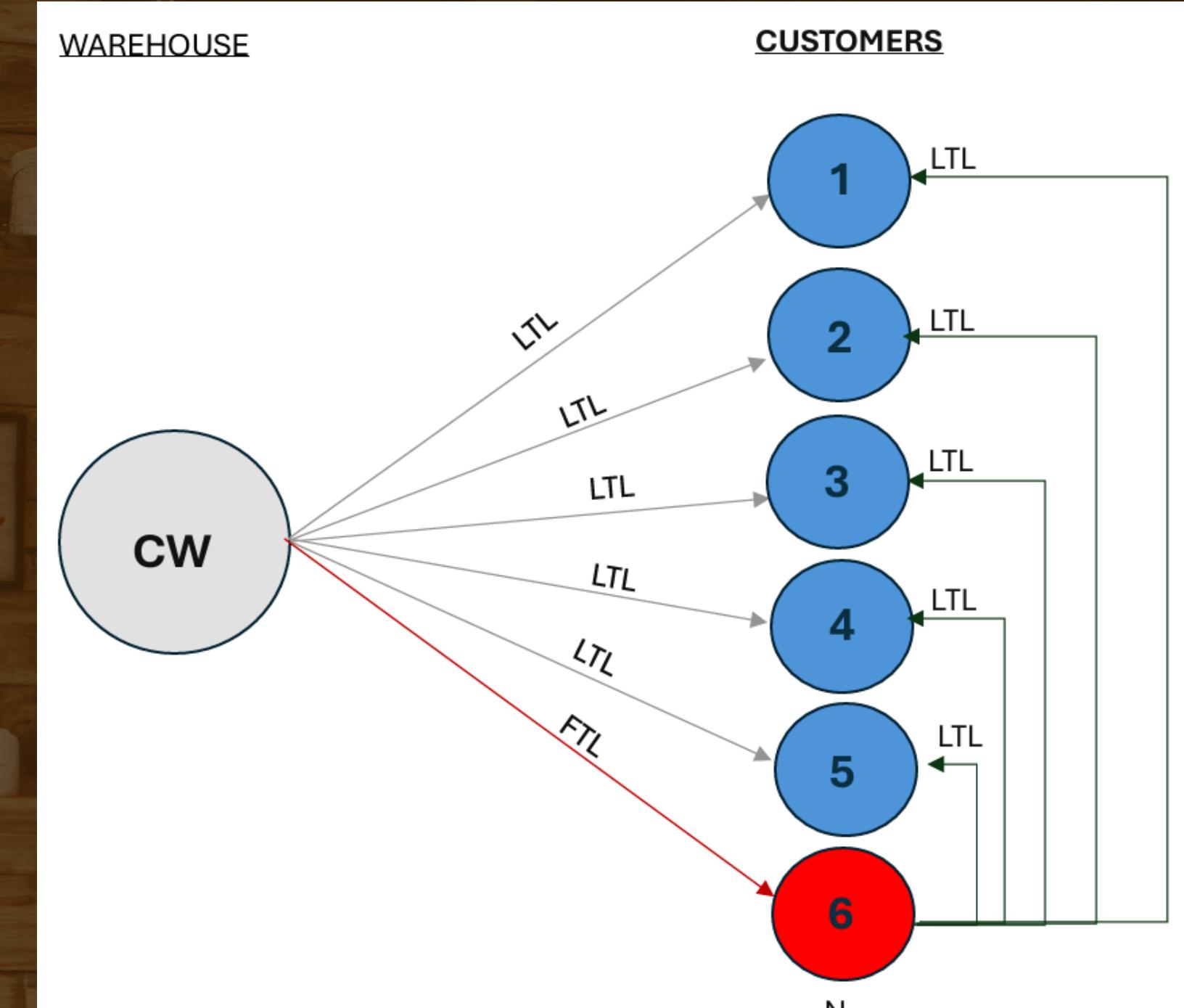


Current Model



*CW: Central Warehouse
*LTL: Less-than-Truckload

Example of possible scenario



*N: New Warehouse
*FTL: Full-Truckload

How the LP Model was Applied

- **Objective:**

Minimize total transportation and handling costs

- **Decision Variables:**

- Goods shipped from the Turin plant to each customer (LTL)
- New warehouse added to reduce costs
- Shipping from plant to warehouse is 60% cheaper (FTL)

- **Constraints:**

- Supply
- Demand
- Non-negativity



Objective of the model:

- **Objective:**

Minimize costs by adding a new warehouse near a customer location

- **Evaluation:**

Created 6 scenarios to assess cost impact
Each scenario has a different customer with a warehouse location

- **Conceptual Flow:**

- Inputs:* Transportation cost, supply/demand, handling costs of warehouses
- Analysis:* LP solver determines optimal allocation and costs
- Outputs:* Optimal shipping plan, minimized costs, **warehouse recommendation**

Warehouse Location	Handling Cost €/tonne)
Customer Location 1	20 €/tonne
Customer Location 2	15 €/tonne
Customer Location 3	15 €/tonne
Customer Location 4	20 €/tonne
Customer Location 5	22 €/tonne
Customer Location 6	20 €/tonne
7(plant)	18 €/tonne

Analyzed Scenarios:

- 6 scenarios, each placing the warehouse at one of the customer locations (1, 2, 3, 4, 5, 6)

FTL Cost Advantage:

- Shipping from plant to warehouse is 60% cheaper than direct shipping to the customer

Key Factors:

- Transportation costs:
 - Plant -> Warehouse -> Customers
 - Plant -> Customer
- Handling costs vary depending on warehouse location
- Demand must be met in all scenarios

Insights:

- Scenario with **warehouse at location #2** is the most optimal for cost minimization



Findings and Results:

Optimal Warehouse Location #2

Objective:

Minimize total transportation cost, considering warehouse handling costs

Key Results:

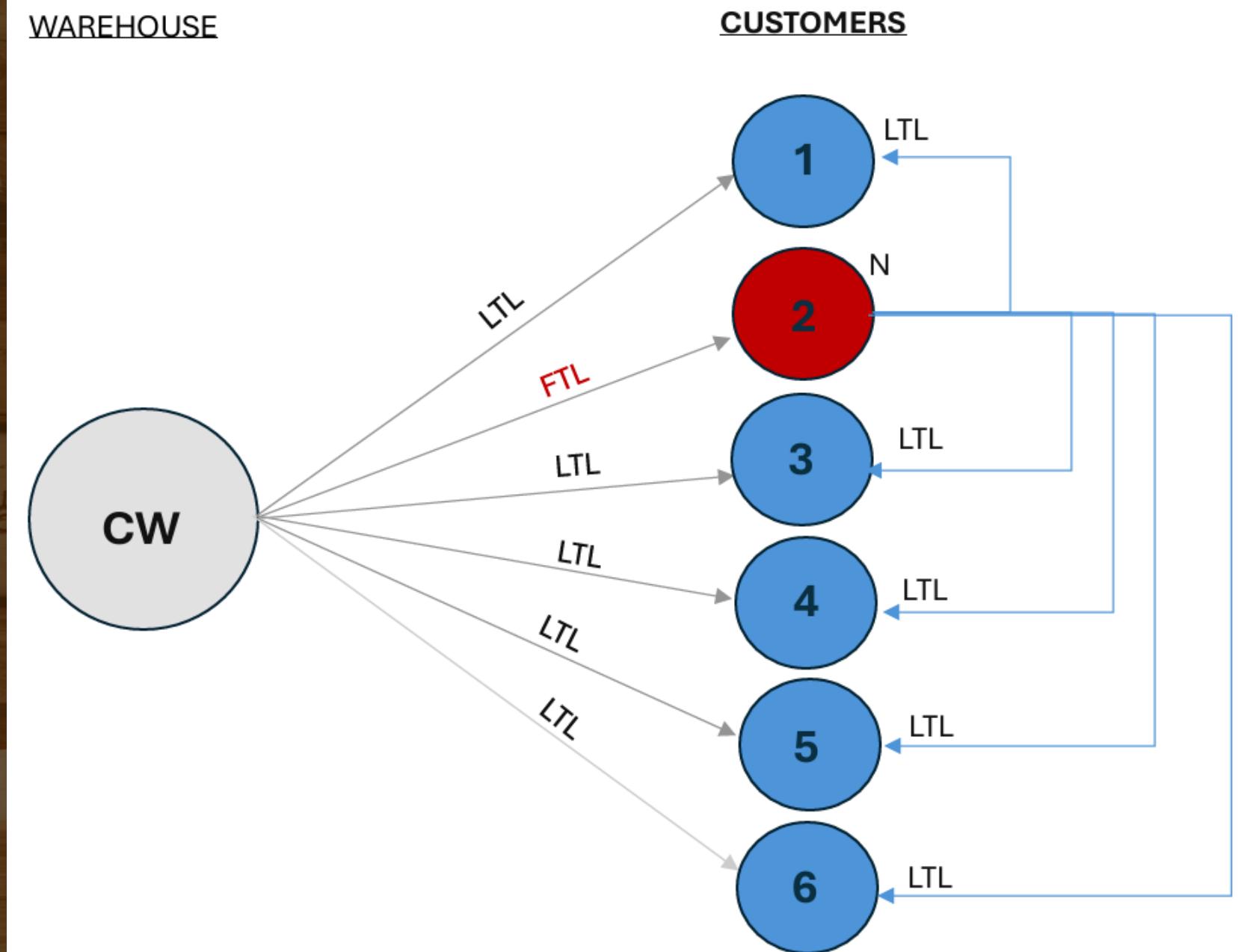
- Total transportation cost: \$8,316,740
- Total handling cost: \$15 per tone
- All demand constraints were satisfied

Optimal Location:

- Warehouse location #2 has the lowest total cost
- Efficient transportation routes reduced overall costs
- Competitive handling costs offer potential savings

Impact:

- Optimized transportation & handling costs to reduce overall expenses
- Goods allocation met all customer demands without exceeding constraints



*N: New Warehouse

*FTL: Full-Truckload

*LTL: Less-than-Truckload

Business Recommendations:

Use Warehouse #2

- **Transportation Strategy:**

- FTL from plant to warehouse #2 reduces cost by 60%.
- Deliveries from warehouse #2 to customers will be using FTL method at the adjusted price.

- **Key Benefit:**

- Cheaper deliveries are being achieved through a good selection and more efficient cost optimization

Conclusion & Key Learnings

Optimal Warehouse Choice:

- Warehouse #2 is the most cost-efficient solution, minimizing transportation and handling costs
- Total costs using warehouse #2 are \$8,316,740 + \$15 handling cost per tone (lowest among all evaluated options)

Business Impact:

- FTL transportation from plant to warehouse #2 results in a 60% cost reduction compared to direct plant-to-customer shipping
- Deliveries remain efficient while lowering expenses

Next Steps & Considerations:

- Monitor cost efficiency over time for warehouse #2
- Evaluate FTL strategy to maintain optimal cost
- Explore potential further improvements

Binary Model for the Lavazza Case Study

Annexe

Origin	Customers (\$/ton)						New Warehouse (6)
	1	2	3	4	5		
Central Warehouse	349	463	814	705	460	215	
6	391	307	674	500	251	0	
5	601	350	663	357	0	251	
4	663	301	383	0	357	500	
3	594	367	0	383	357	500	
2	362	0	367	301	350	307	
1	0	362	594	663	601	391	
Model		Handling Cost (\$)					
Minimize Total Cost (\$)		New Warehouse					
33654		0					
Origin	Customers (tons)						open or not
	1	2	3	4	5	New Warehouse (6)	
Central Warehouse	214.2857	328.5714	428.5714277	785.7143	428.5714	328.5714286	2514.286
6	214.2857	328.5714	428.5714287	785.7143	428.5714	328.5714286	2514.286
5	214.2857	328.5714	428.5714287	785.7143	428.5714	328.5714286	2514.286
4	214.2857	328.5714	428.5714287	785.7143	428.5714	328.5714286	2514.286
3	214.2857	328.5714	428.5714287	785.7143	428.5714	328.5714286	2514.286
2	214.2857	328.5714	428.5714287	785.7143	428.5714	328.5714286	2514.286
1	214.2857	328.5714	428.5714287	785.7143	428.5714	328.5714286	2514.286
Total	1500	2300	3000	5500	3000	2300	
Constraints							
1500	=	1500					
2300	=	2300					
3000	=	3000					
5500	=	5500					
3000	=	3000					
2300	=	2300					

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A photograph of a bartender pouring beer from a tap into a glass. The scene is dimly lit with warm tones, and the background shows shelves filled with various bottles and glasses. The main focus is on the hands and the beer tap.

THANK
YOU

