Cheetah Running Shoes
Logistic Plan

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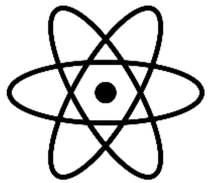
Agenda



SOLUTIONS

1. Conservative
2. Adventurous

OVERVIEW

Situation Overview

Methodology

WHY

Logistic Analysis

Economic Analysis

Market Analysis

RECOMMENDATION

DC Suggestion

Solutions

Conservative:

within **3 days** shipment

5 DCs

Denver, Pittsburgh, Dallas, Greenville, Indianapolis

$11.69 M optimal cost

$1.2 M SAVED*

Adventurous:

within **2 days** shipment

6 DCs

Denver, Pittsburgh, Memphis, Chicago, Greenville, Dallas

$14.6 M optimal cost

$4.6 M SAVED*

** Compared with 2 original DCs with the same delivery time*

Overview

Data:

- Forecast Demand
- Plant Capacity
- Inbound/Outbound/Handling Cost
- Transit Time and Next Day Air Cost

Questions to Answer:

1. Does CRS have the right number of DCs and are they in the best locations?
2. Does it ever make sense to use Next Day Air?
3. What is the tradeoff between customer service and cost?

Methodology

Objective Function: Minimize Total Logistic Cost

Decision Variables:

1. Inbound decision: From Plant to Distribution Center
2. Outbound decision: From Distribution Center to Customer Zone

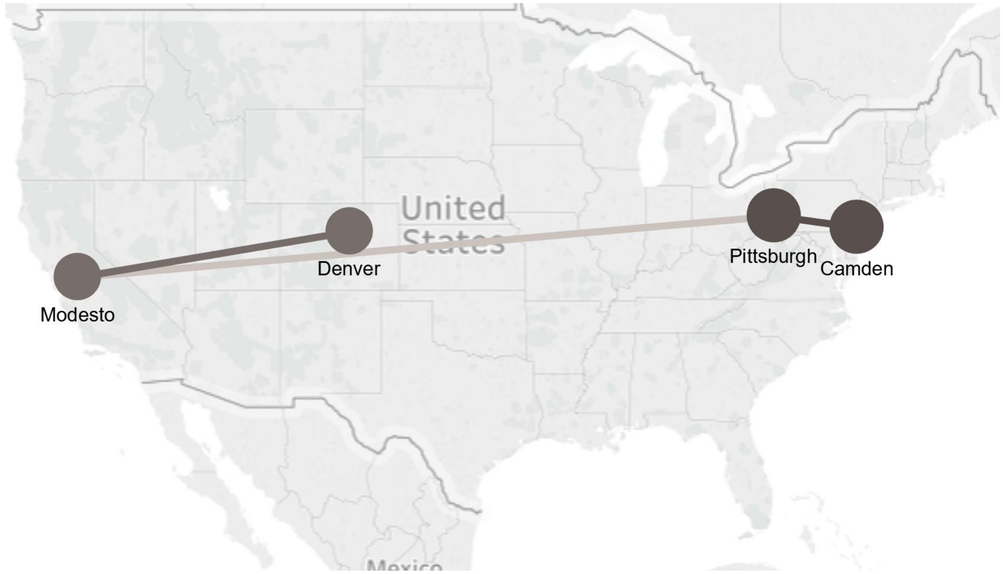
Special Constraints:

1. Number of DCs
2. Maximum Transit Time (days)
3. Customer Demand Satisfied

GUROBI OPTIMIZATION | READY PARTNER

Current Plan

Inbound Routes and Volumes



	Camden	Modesto
Denver	0	6,895,061
Pittsburgh	9,000,000	1,159,628

2
DCs

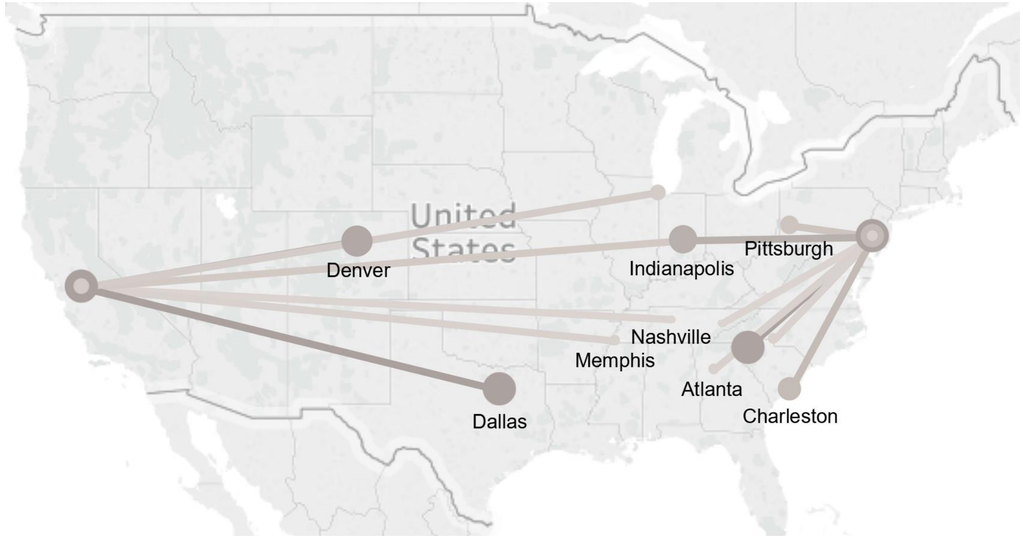
$12.57 M
cost

801
Outbound Routes

3
Inbound Routes

It looks the best if we use all the DCs

Inbound Routes and Volumes



12 DCs	13 Inbound Routes	577 Outbound Routes	$11.55 M cost **Save** $1.02 M

	Camden	Modesto
Atlanta	343,921	0
Charleston	1,635,612	0
Charlotte	268,921	0
Chicago	0	638,166
Dallas	0	3,298,787
Denver	0	2,889,546
Greenville	3,190,219	0
Indianapolis	2,396,557	739,525
Knoxville	130,354	0
Memphis	0	346,689
Nashville	0	141,976
Pittsburgh	1,034,416	0

Really Optimal?

DCs	2	12
Inbound Routes	3	13
Outbound Routes	801	577
Cost	12.57M	11.55M

Inbound Variable Cost
+
Outbound Variable Cost
+
Handling Variable Cost

Really Optimal?

DCs	2	12
Inbound Routes	3	13
Outbound Routes	801	577
Cost	12.57M	11.55M

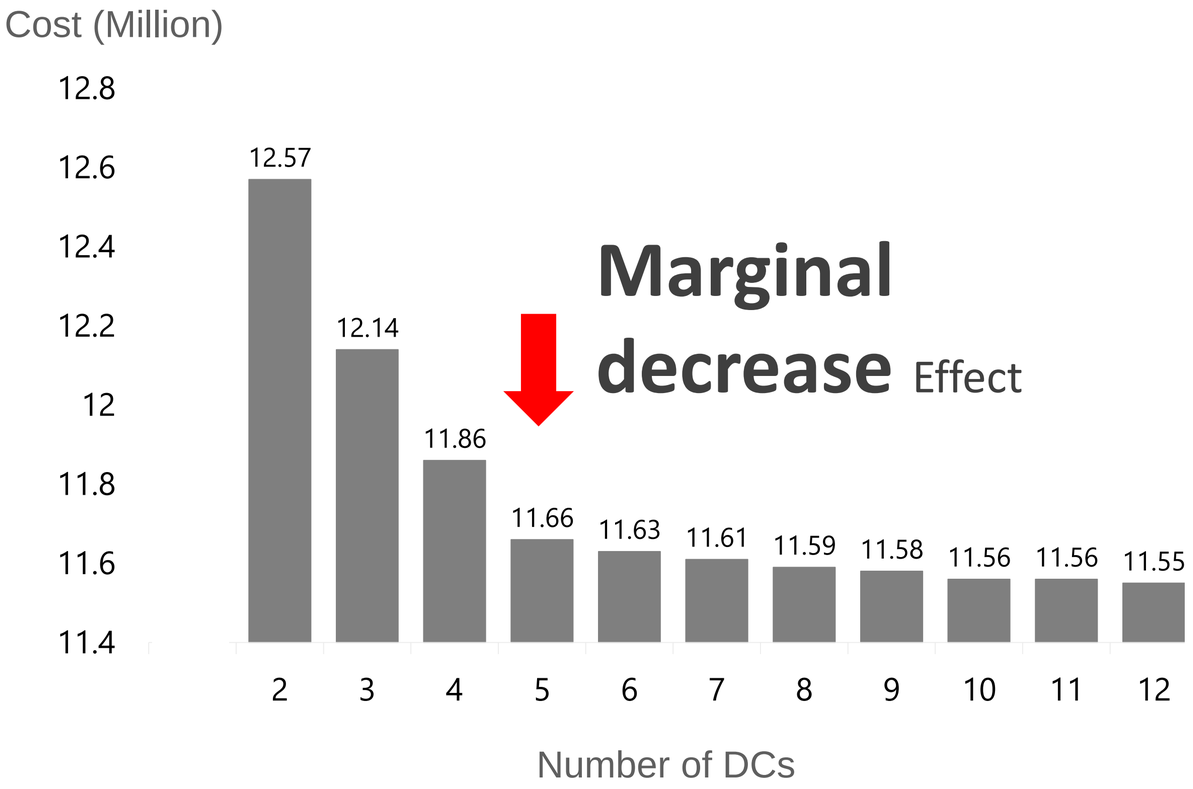
Inbound Variable Cost
+
Outbound Variable Cost
+
Handling Variable Cost

> ?

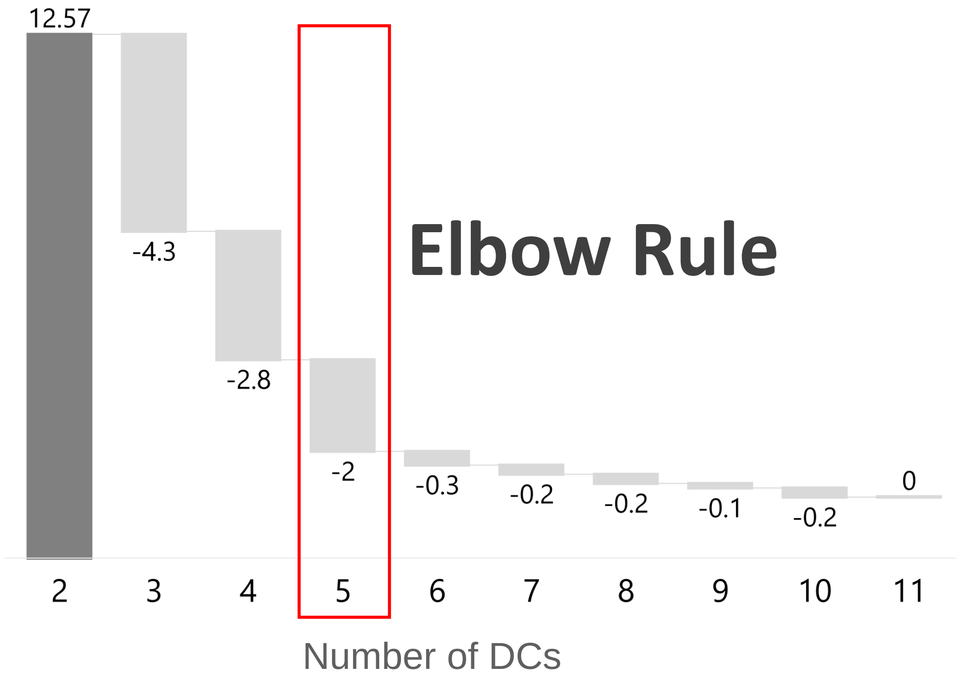
Rentals
Utilities
Insurance
Administration
…

Without Extra Data: Elbow Rule

Minimum Cost (million) with Increasing Number of DCs



Decreased Cost (million) with Increasing Number of DCs



Then, Two Voice Around…

“

5 DAYS of SHIPMENT IS A NOT A GOOD PROMISE

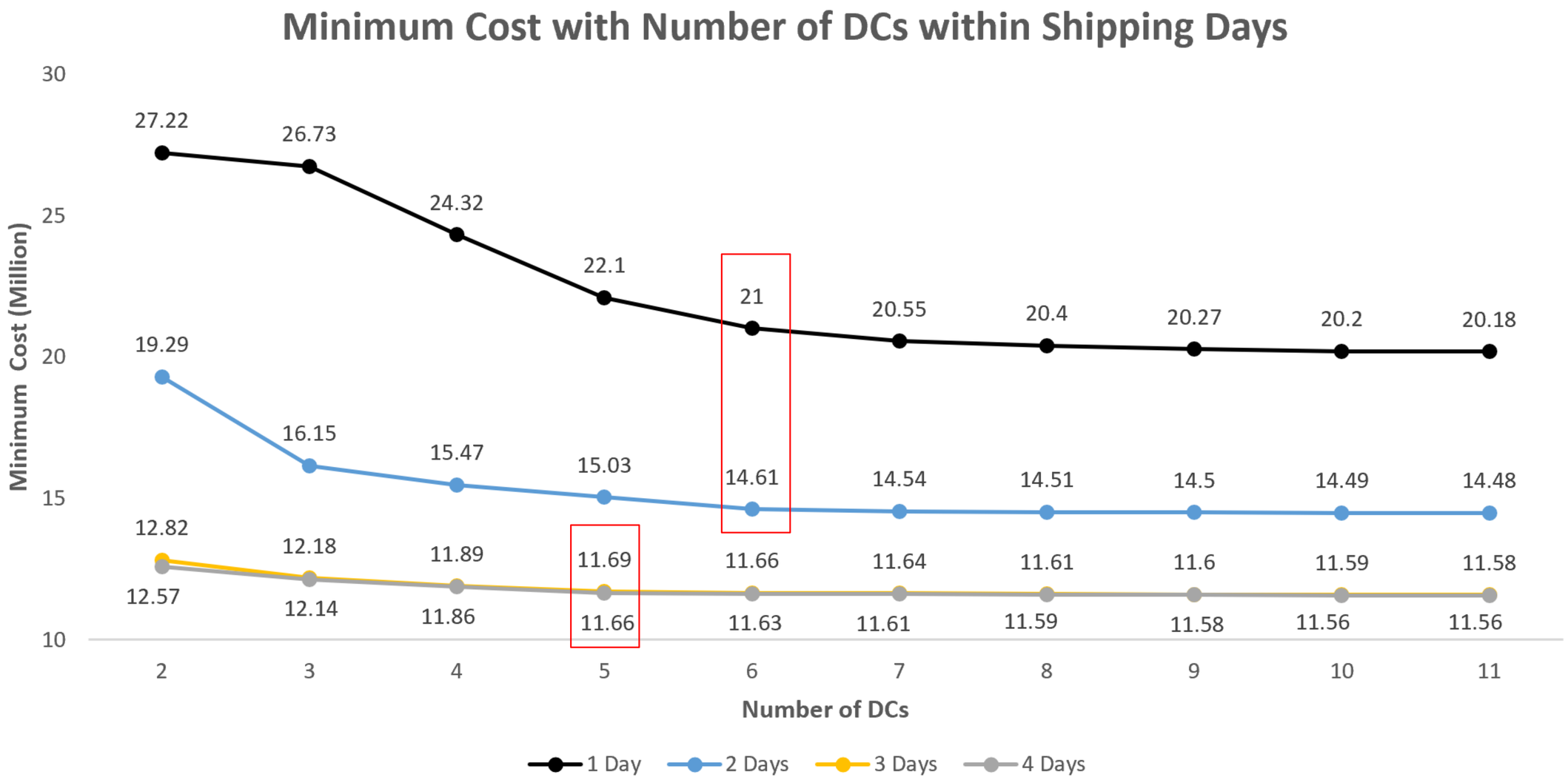
”

“

IT WOULD COST MUCH MORE IF REDUCE THE TIME

”

Let’s have a look…



Compare

4 DAYS	3 DAYS	2 DAYS	1 DAYS
$ 11.66 M 5 DCs	**$ 11.69 M** 5 DCs	**$ 14.61 M** 6 DCs	**$ 21 M** 6 DCs

Conservative

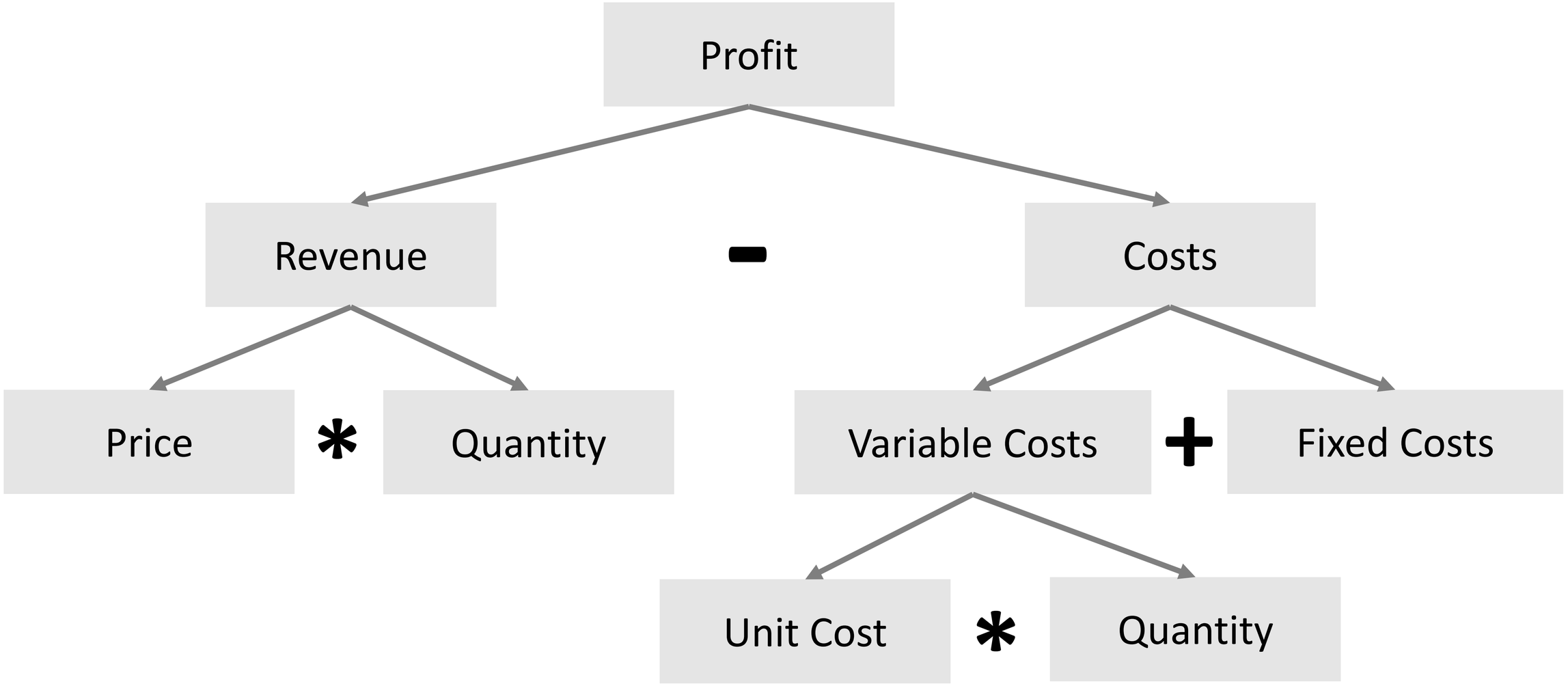
Denver, Pittsburgh, Dallas, Greenville, Indianapolis

Adventurous

Denver, Pittsburgh, Memphis, Chicago, Greenville, Dallas

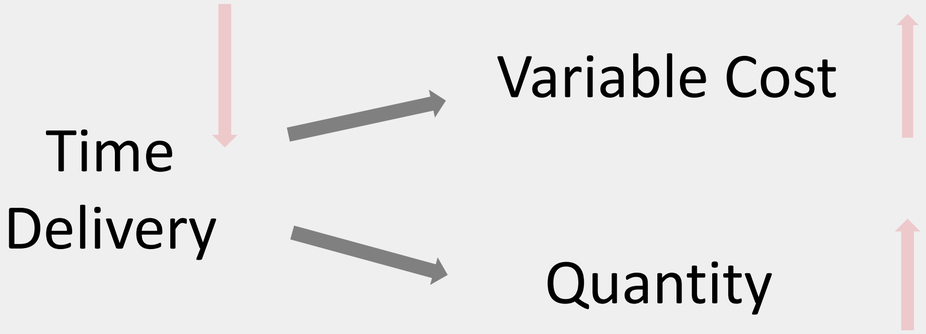
Is the trade-off worth it?

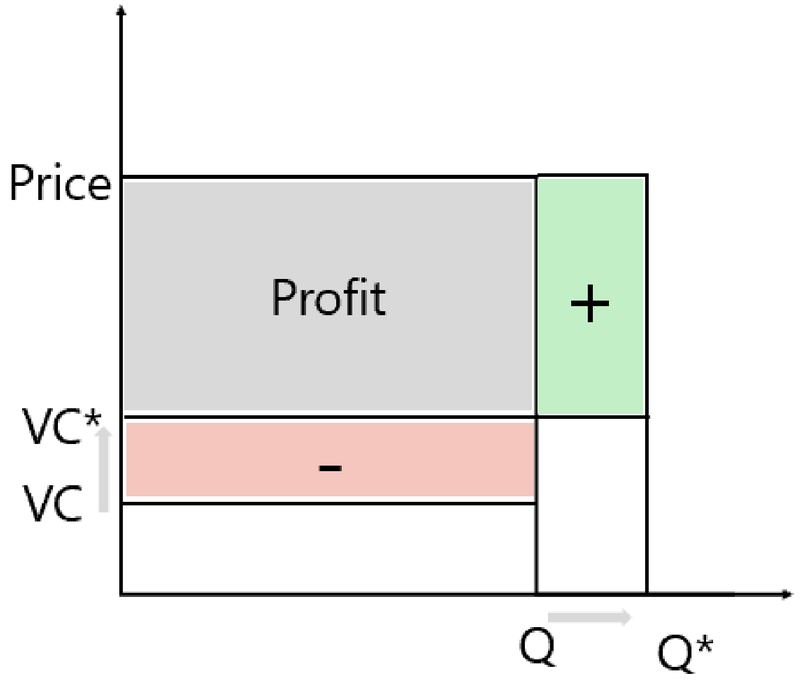
Profitability Analysis



Trade-Offs among Probability

Profit = (Price-VC) * Quantity - FC

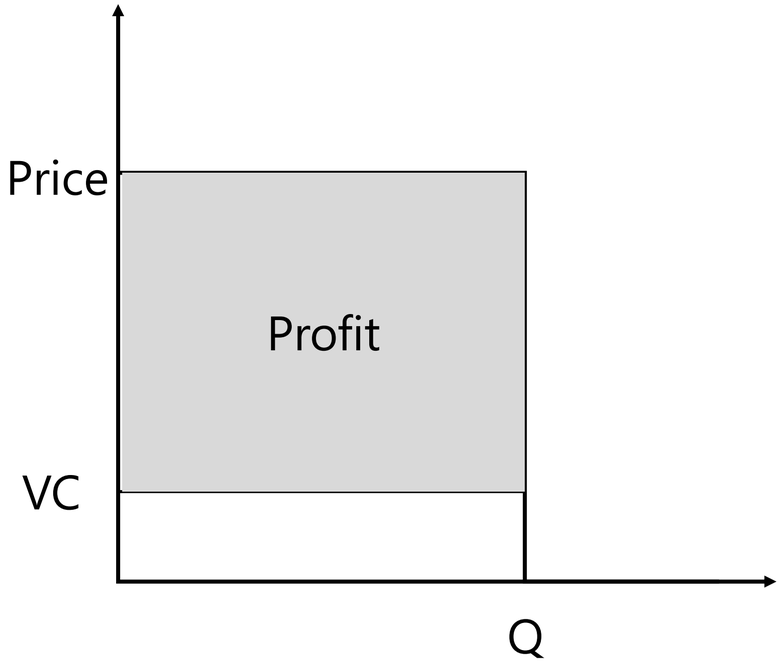


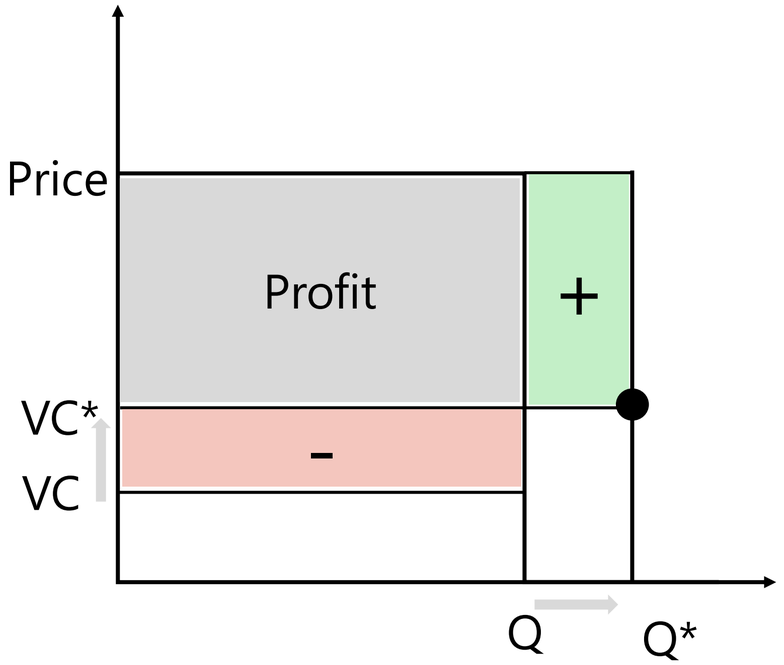


Trade-Off ?

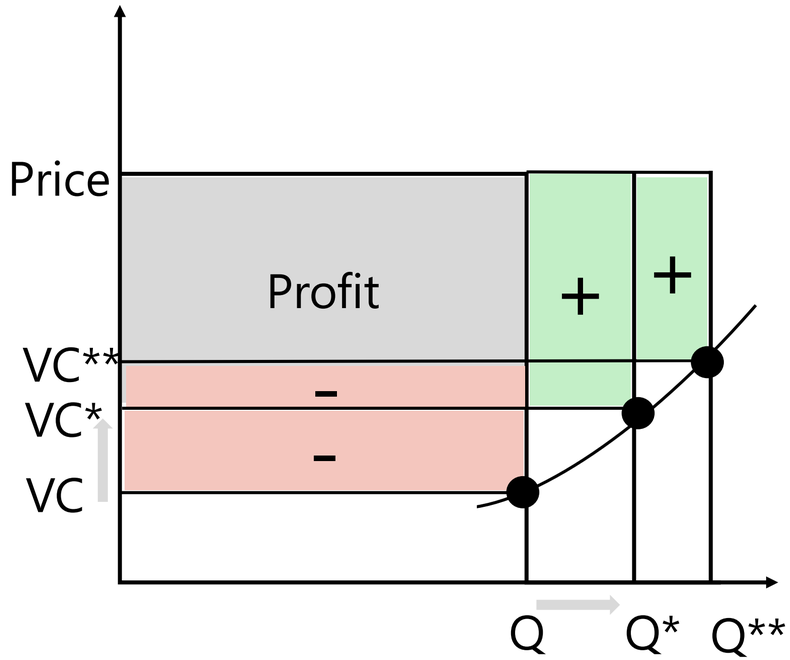
Break-Even Analysis

At what stage, will be profitable?





Break-Even Point

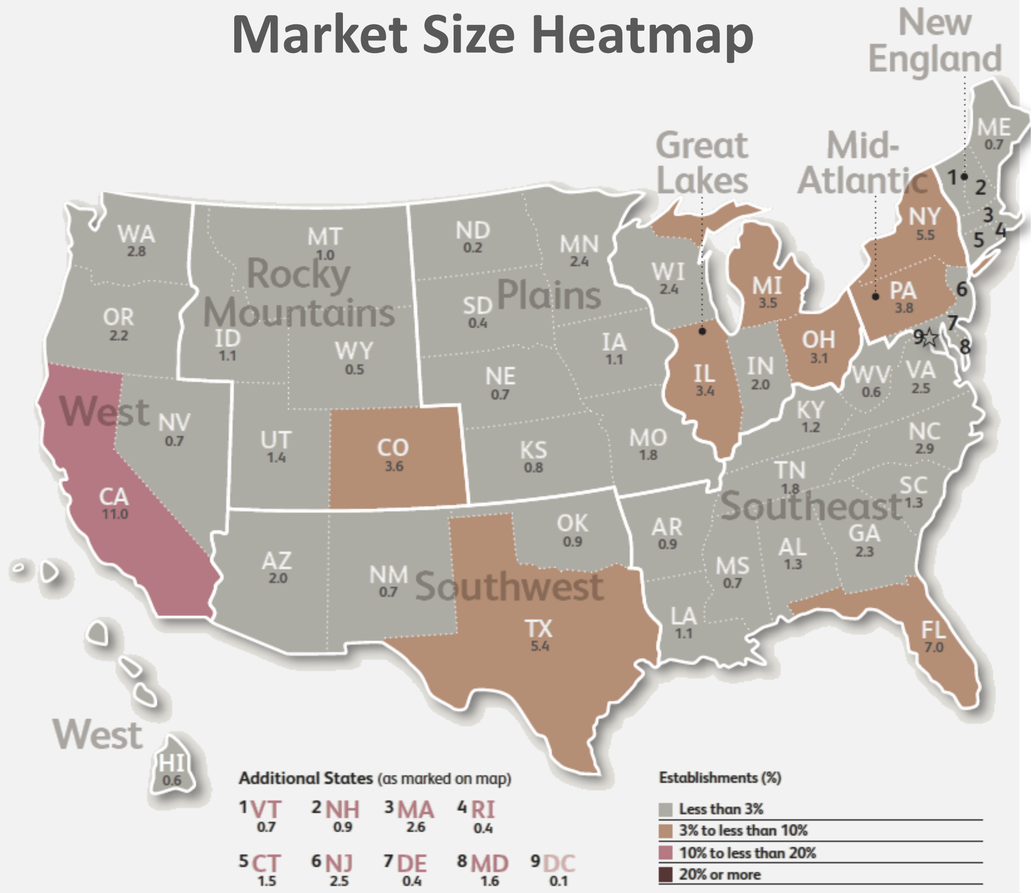


Break-Even Boundary

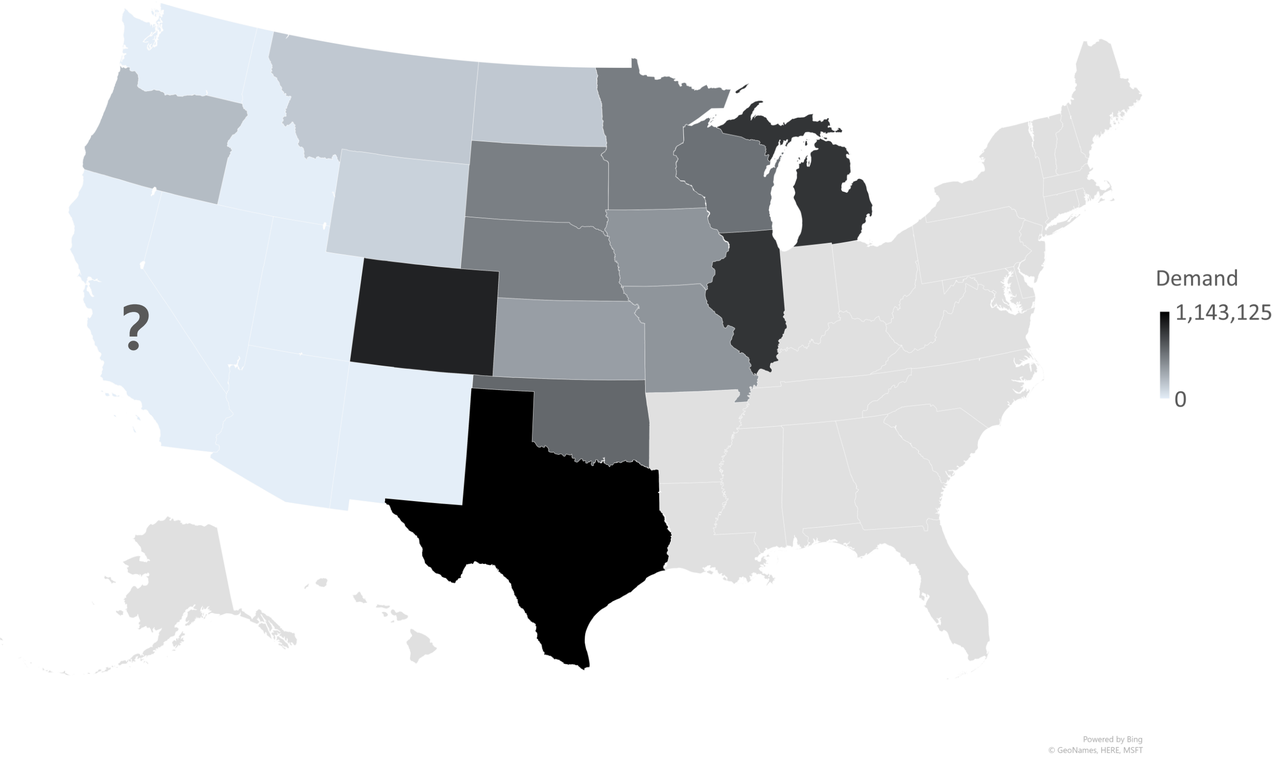
Any growth opportunity?

Opportunity in California

Running Shoes Market Size Heatmap

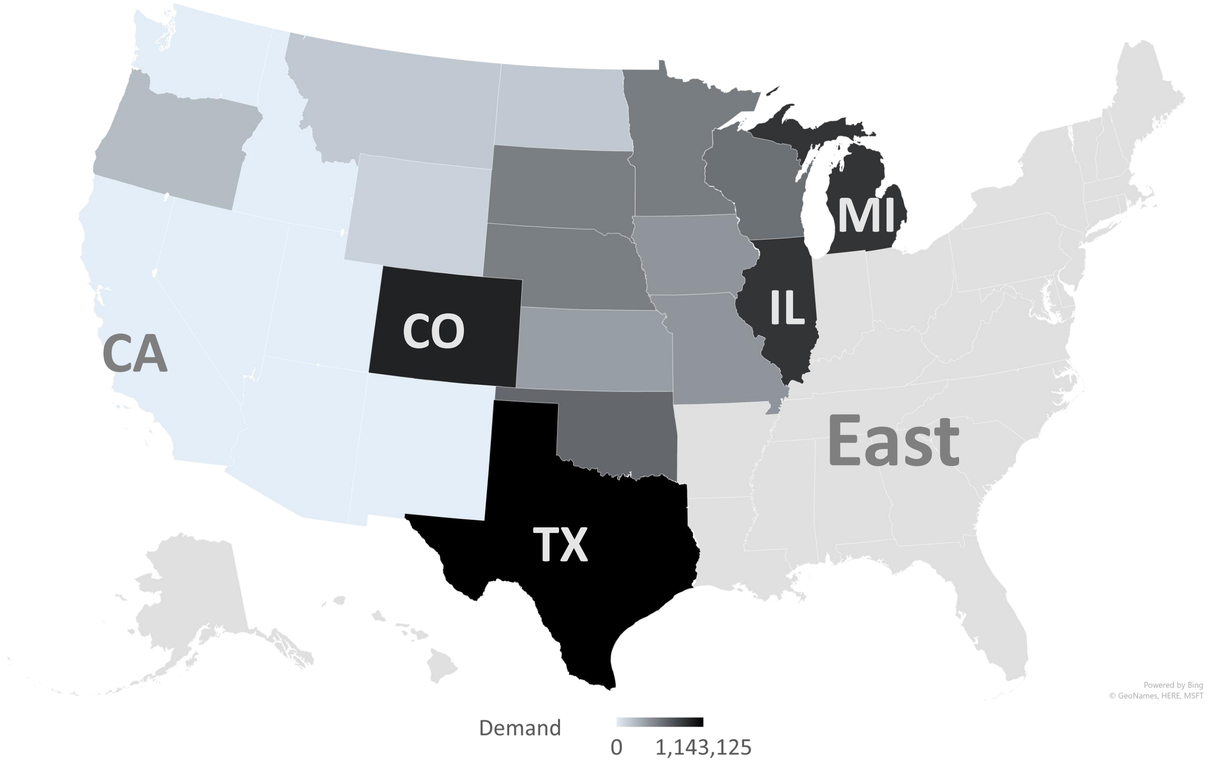


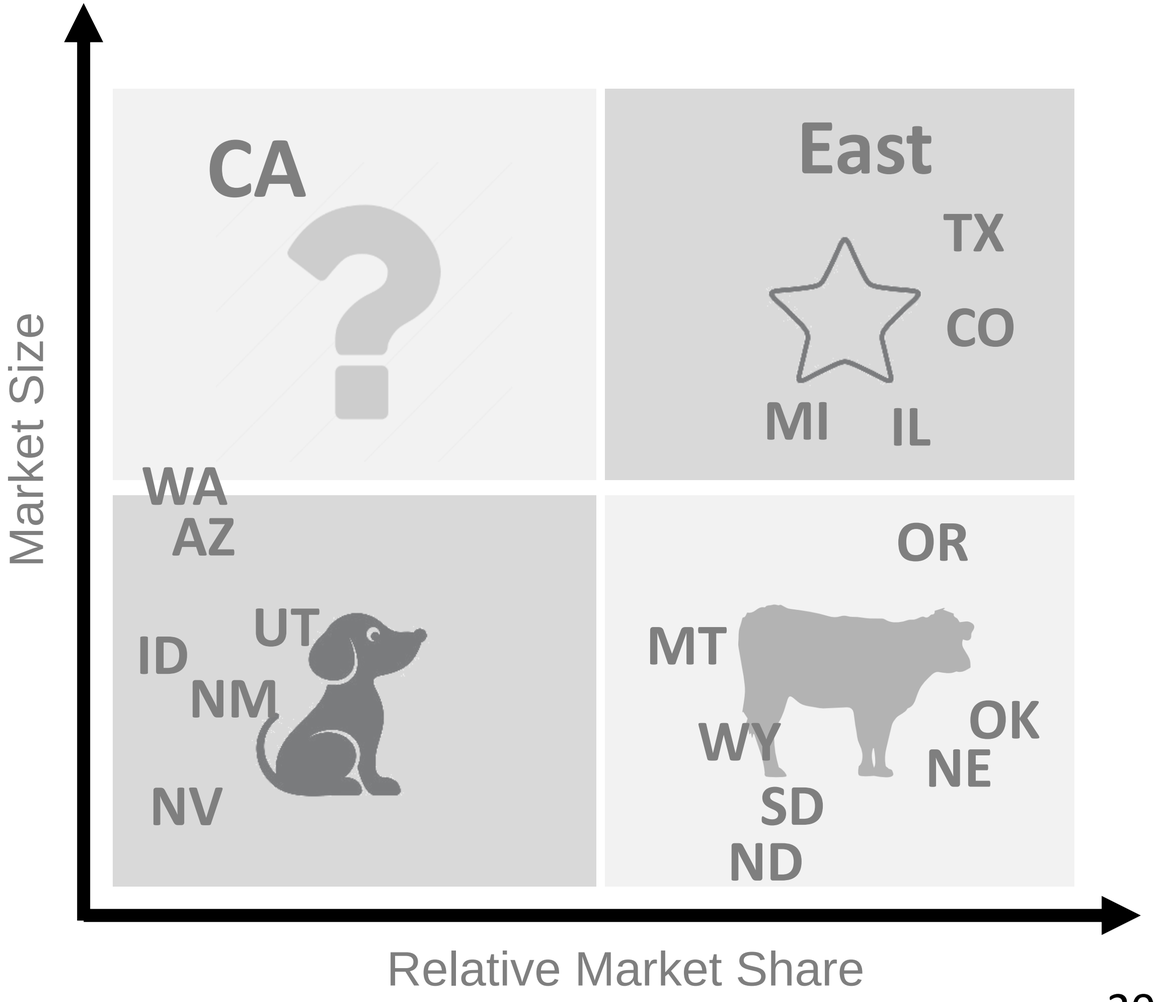
Cheetah Customer Demand Heatmap (Western and Central Region)



** IBISWorld Industry Report OD4378 Hiking & Outdoor Equipment Stores in the US March 2018*

Opportunity in California





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Recommendations

Invest more in the West America

- Select 2 days 6 DCs solution
- Build more DCs and develop more customer zones in the West

Q & A