Training in Supply Chain Design and Optimization
Network design game

Health and Humanitarian Logistics Conference | Dubai | July 19 2018

argus I

Your Supply Chain Analyst

Supply chain design

Some background

- Supply chain design in commercial sector mostly dependent on lead time and customization
- Humanitarian and public health supply chains are very complex
- But… same topics are put in the top 3 important factors by workshop participants from these sectors

Network design game

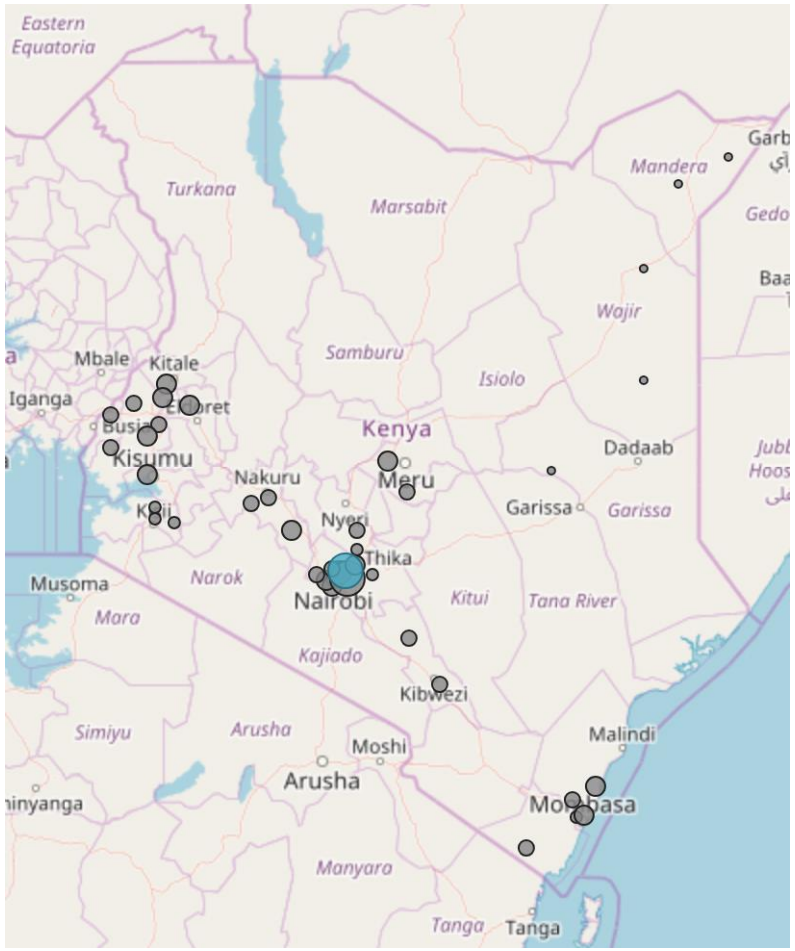
Learning by doing

- Game illustrates effect of supply chain design on lead time and cost
- Game can be customized with real data of any organization
- For now, the game shows biggest health facilities in Kenya as customers (dummy data!)
- We will play 4 quiz rounds of the game to experience it… ready?

Round 1

What is the best supply chain design when your goal is to minimize cost?

A



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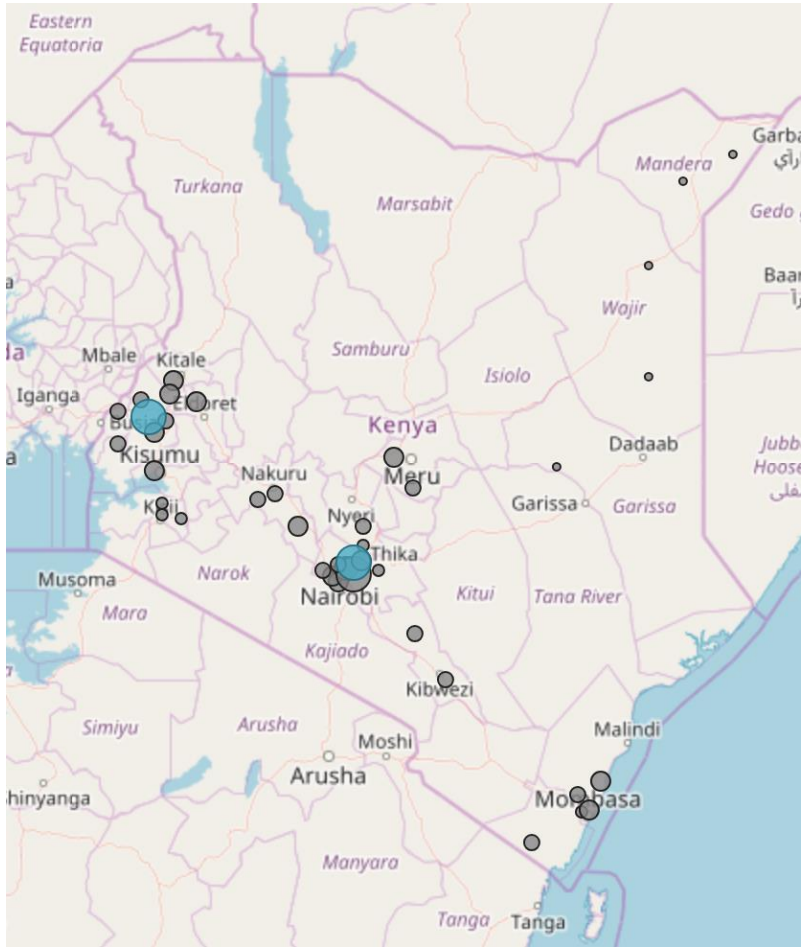
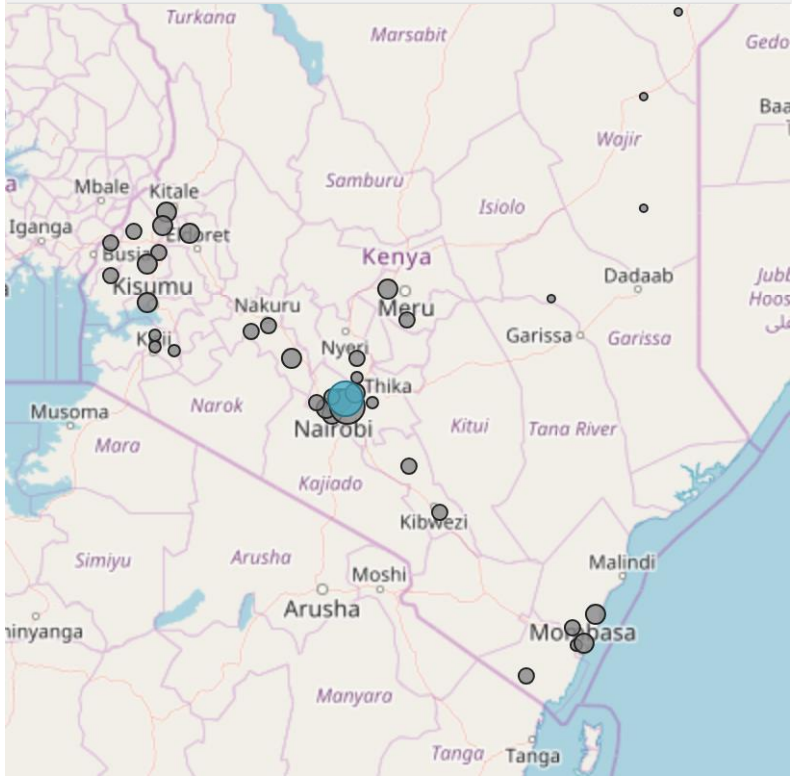


Round 1

What is the best supply chain design when your goal is to minimize cost?

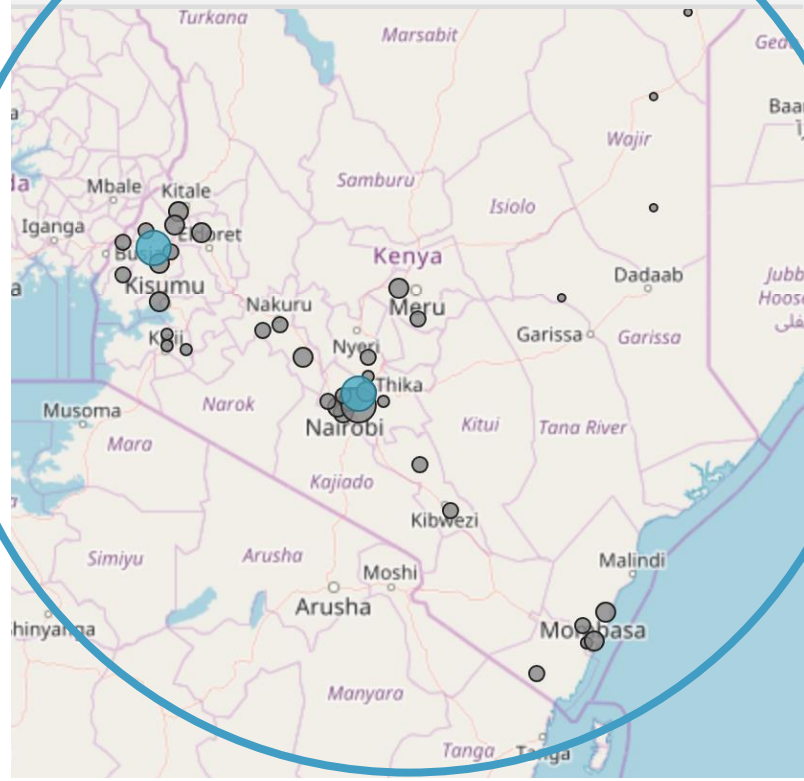
A

Solution	Costs			Service levels	
	DC	Outbound	Total	Demand	Customers
Solution 1 - 1 DC(s)	€ 100,000	€ 1,002,905	€ 1,102,905	32.5%	26.3%



B

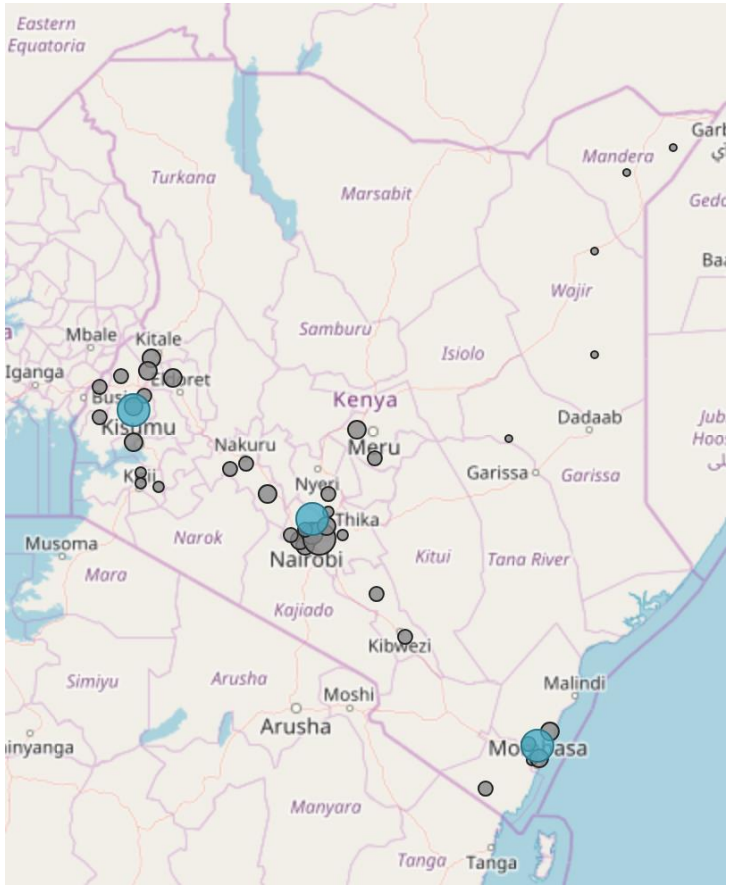
Solution	Costs			Service levels	
	DC	Outbound	Total	Demand	Customers
Solution 1 - 2 DC(s)	€ 200,000	€ 697,250	€ 897,250	55.0%	45.7%



Round 2

What is the best supply chain design when your goal is to minimize cost while ensuring 75% coverage of demand within 4 hours? Will it be different if you have to ensure 75% of customer coverage within 4 hours?

A



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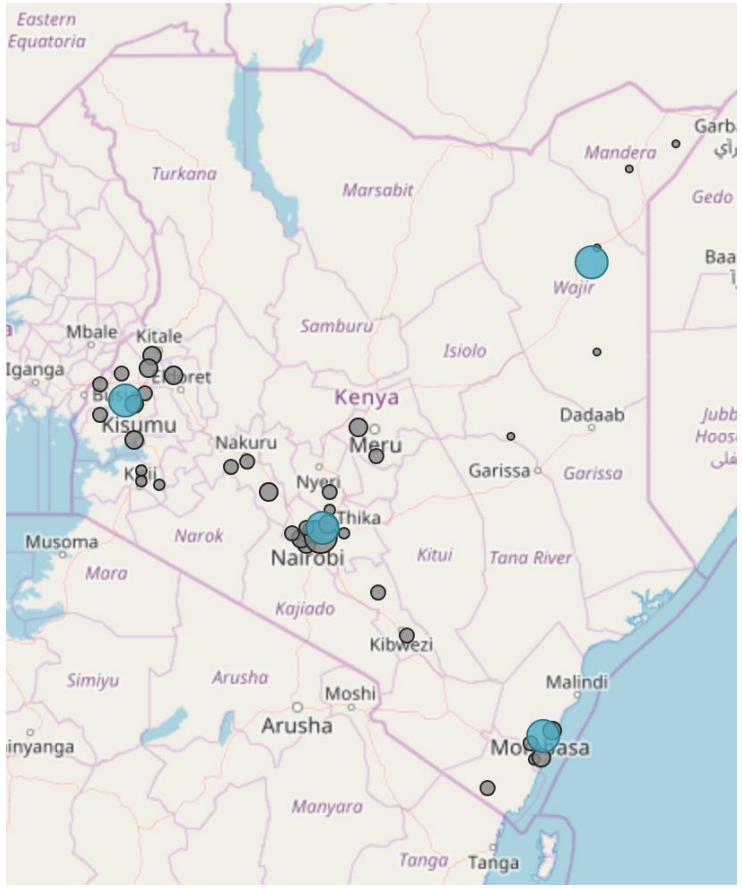

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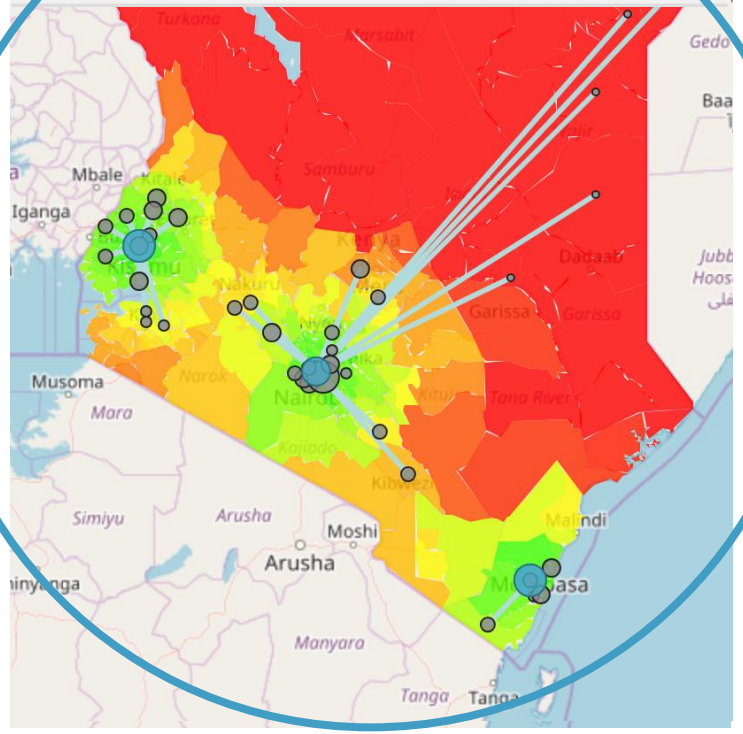
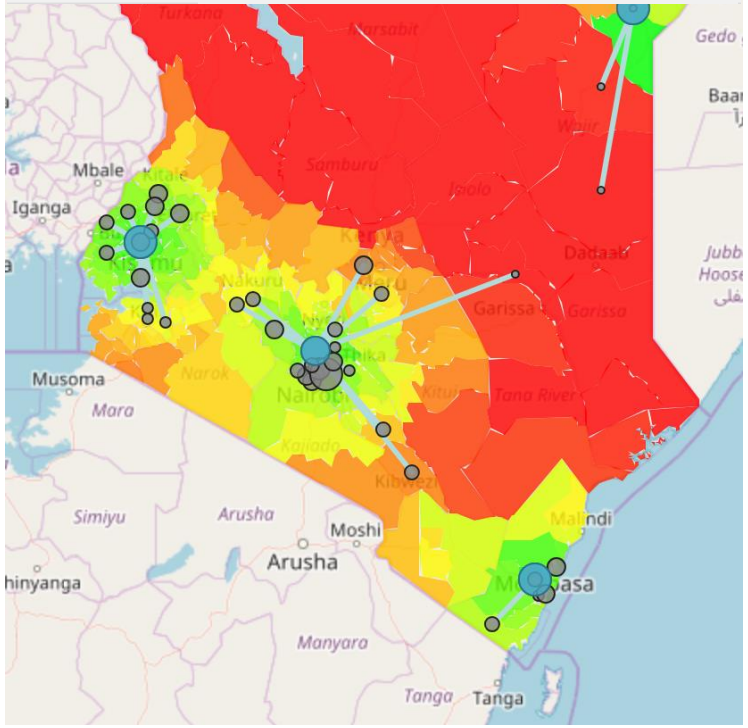
A

Solution	Costs			Service levels	
	DC	Outbound	Total	Demand	Customers
Solution 1 - 3 DC(s)	€ 300,000	€ 428,452	€ 728,452	75.0%	63.5%



B

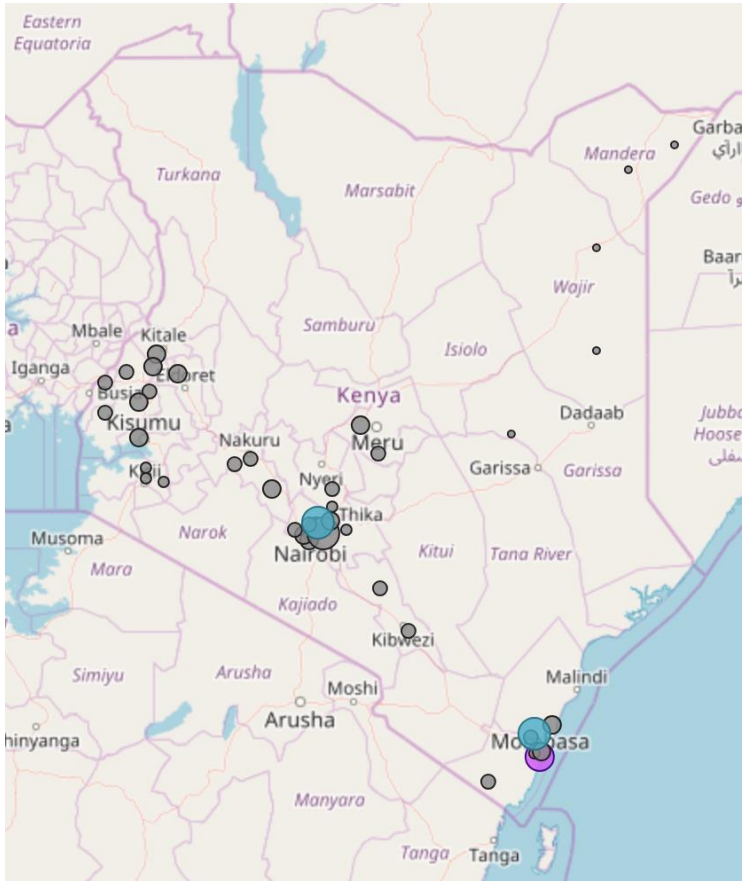
Solution	Costs			Service levels	
	DC	Outbound	Total	Demand	Customers
Solution 1 - 4 DC(s)	€ 400,000	€ 369,785	€ 769,785	82.5%	76.1%



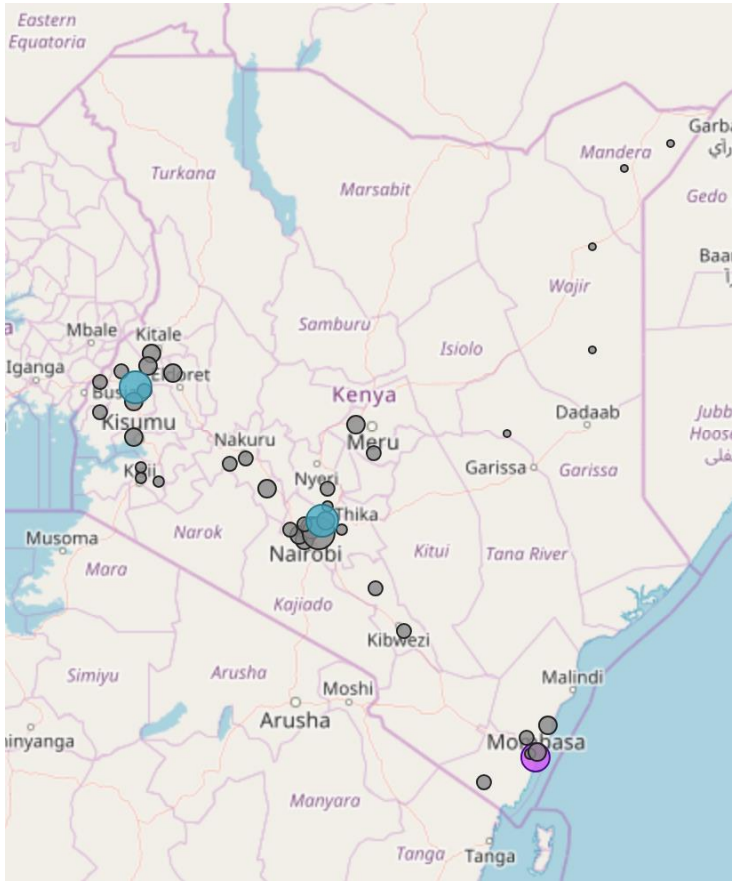
Round 3

What is the best supply chain design when your goal is to minimize cost assuming that all products enter the country at the Mombasa harbor? Will it be different if you maximize coverage?

A



B



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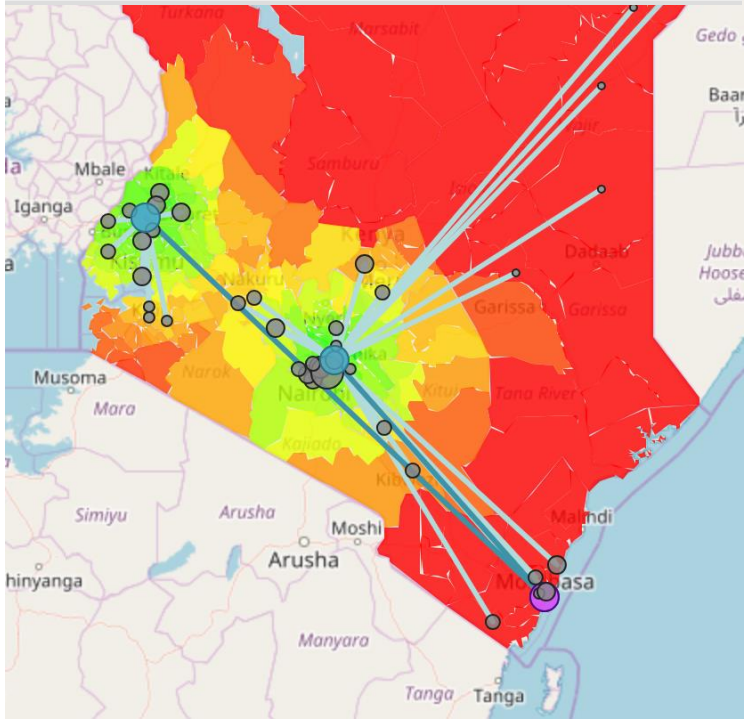
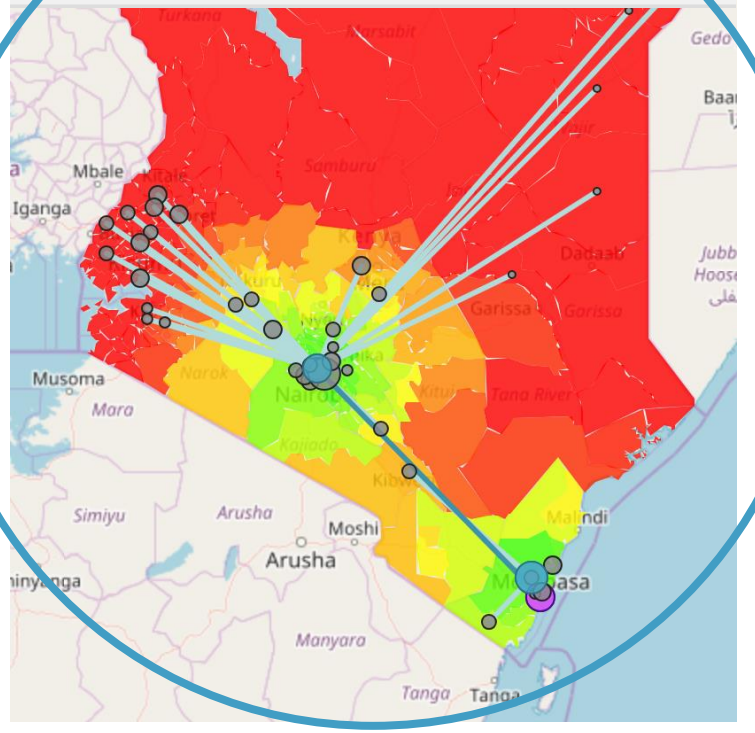
A

Solution	Costs				Service levels	
	DC	Inbound	Outbound	Total	Demand	Customers
Solution 3 - 2 DC(s)	€ 200,000	€ 394,876	€ 704,690	€ 1,299,566	61.5%	55.0%



B

Solution	Costs				Service levels	
	DC	Inbound	Outbound	Total	Demand	Customers
Solution 2 - 2 DC(s)	€ 200,000	€ 266,091	€ 773,987	€ 1,240,078	50.9%	45.0%



Round 4

Assuming all products enter the country at Mombasa harbor. What will be the optimum amount of warehouses?

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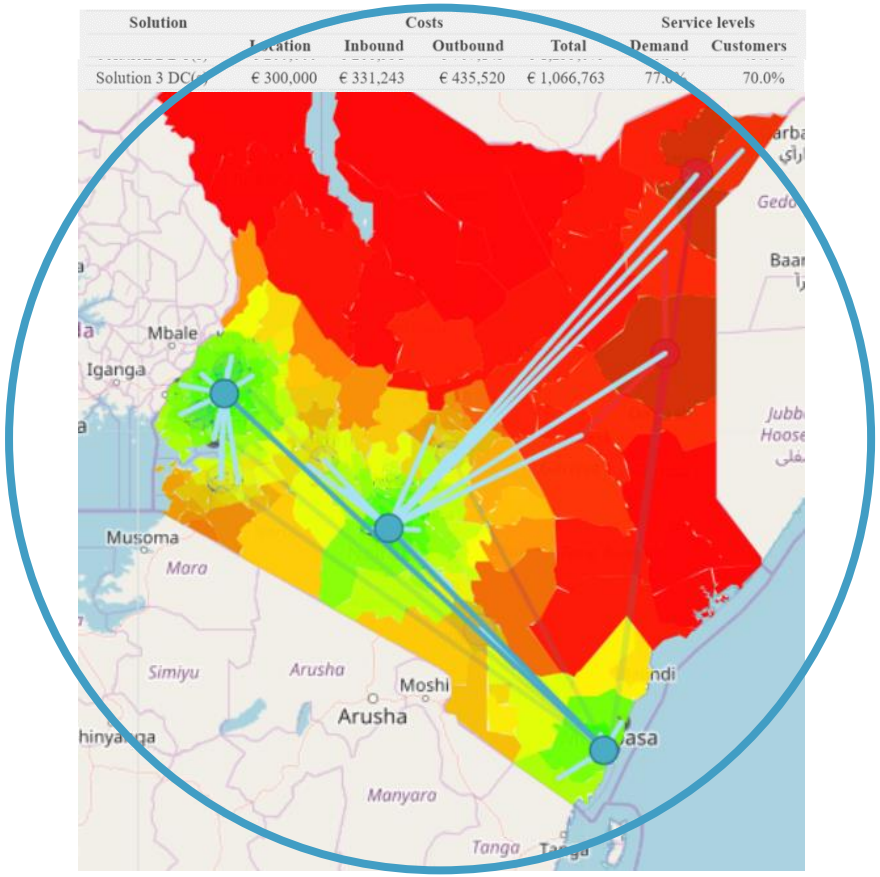

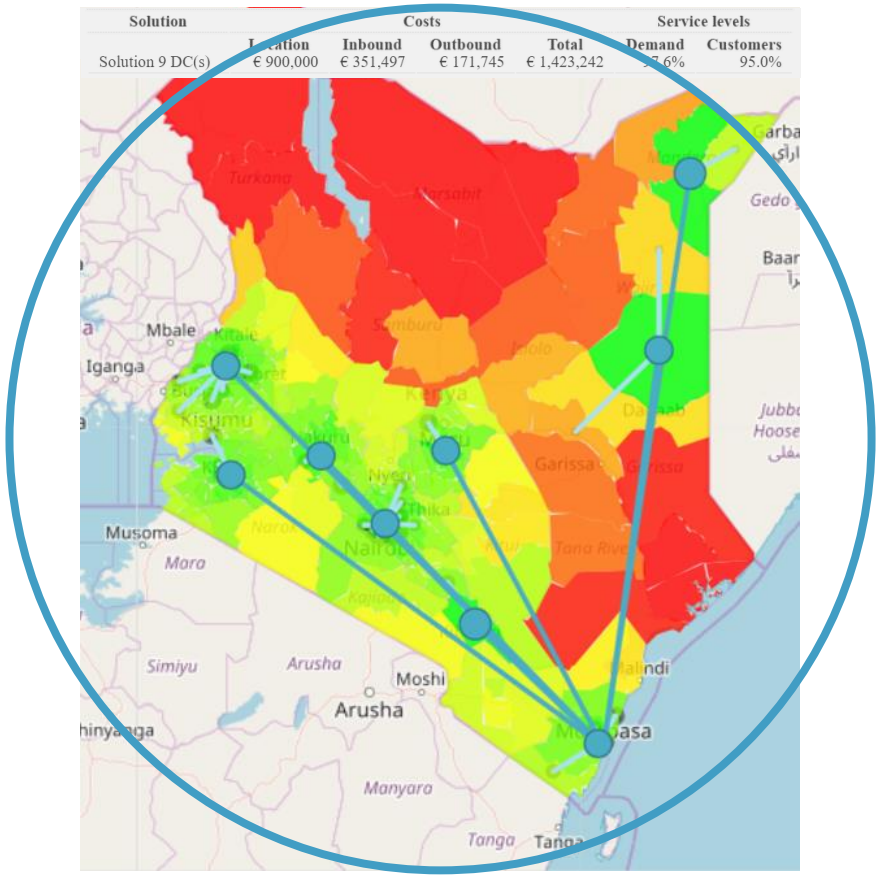

Round 4

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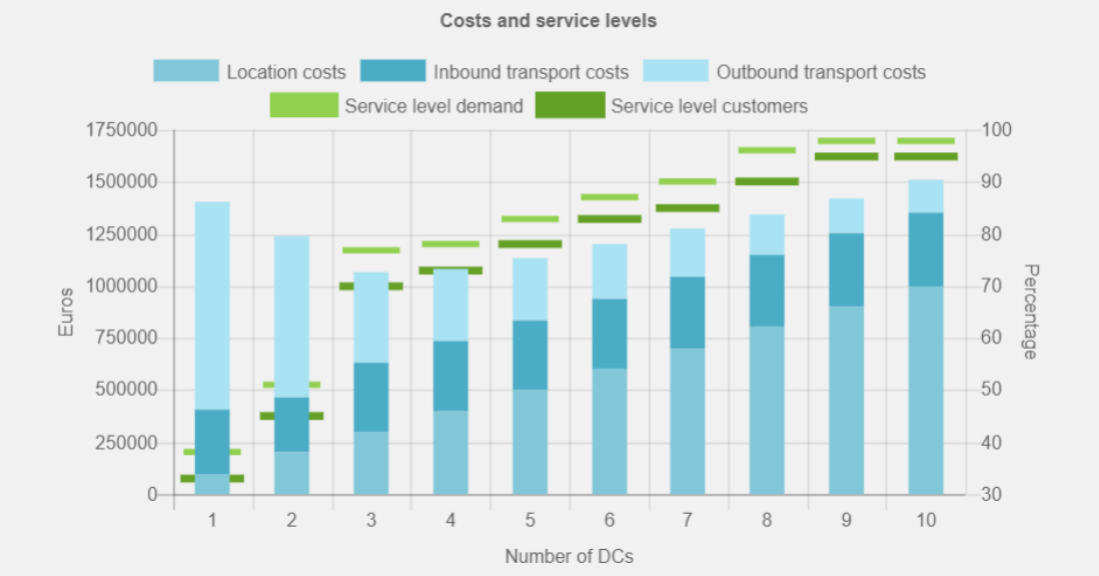

Solution	Costs				Service levels	
	Location	Inbound	Outbound	Total	Demand	Customers
Solution 1 DC(s)	€ 100,000	€ 306,820	€ 1,000,840	€ 1,407,659	37.8%	32.5%
Solution 2 DC(s)	€ 200,000	€ 268,531	€ 767,143	€ 1,235,675	50.9%	45.0%
Solution 3 DC(s)	€ 300,000	€ 331,243	€ 435,520	€ 1,066,763	77.0%	70.0%
Solution 4 DC(s)	€ 400,000	€ 338,304	€ 342,289	€ 1,080,593	78.0%	72.5%
Solution 5 DC(s)	€ 500,000	€ 335,196	€ 302,490	€ 1,137,686	82.6%	77.5%
Solution 6 DC(s)	€ 600,000	€ 335,969	€ 268,119	€ 1,204,087	87.5%	82.5%
Solution 7 DC(s)	€ 700,000	€ 344,232	€ 229,090	€ 1,273,323	90.4%	85.0%
Solution 8 DC(s)	€ 800,000	€ 347,278	€ 197,642	€ 1,344,919	95.5%	90.0%
Solution 9 DC(s)	€ 900,000	€ 351,497	€ 171,745	€ 1,423,242	97.6%	95.0%
Solution 10 DC(s)	€ 1,000,000	€ 354,612	€ 151,419	€ 1,506,030	97.6%	95.0%

Want to know more?

Or try it yourself!

Network Design Game

https://argusi.org/en/ndg-kenya/

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