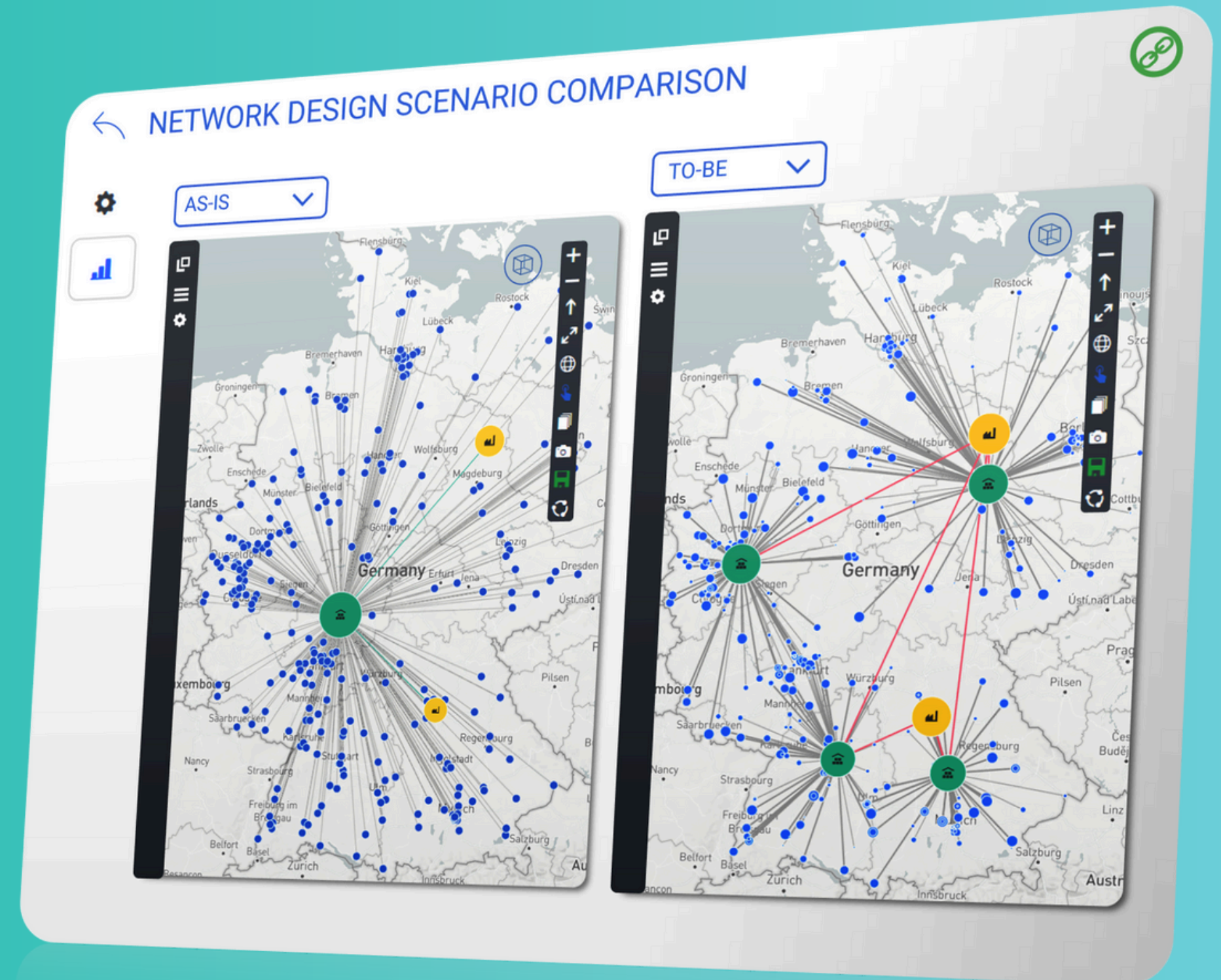


Scaling Up: Redesigning the German Apparel Distribution Network for Growth

Discover how an apparel retailer used Log-hub's Supply Chain Apps to redesign their supply chain network, increase service levels, reduce costs, and drive business growth.





Challenges: Addressing Growth-Driven Delivery Delays

An apparel manufacturer in Germany managed its supply chain through two suppliers—one in Neuerburg producing accessories and another in Stendal focusing on shoes and activewear. These suppliers shipped all products to a single, centrally located warehouse in Hesse, which then distributed to 178 small, local retail outlets across the country. This setup had served the company well for years, with each outlet receiving an average of 50 shipments annually.

However, as demand grew due to a larger customer base and higher order volumes, the existing network began to show its limitations. The single-warehouse model created bottlenecks, increased transportation costs, and failed to accommodate the rising complexity of operations. Recognizing the need for change, the company started looking for a tool which can help them to resolve the main challenges they were facing:



Frequent customer complaints about delivery delays undermining satisfaction and trust



The current network struggles to accommodate surging demand



Escalating service disruptions jeopardize customer loyalty and retention



A design optimized for smaller retailers is ill-suited to the needs of larger or expanding businesses



Scalability challenges and reduced operational efficiency hinder growth potential



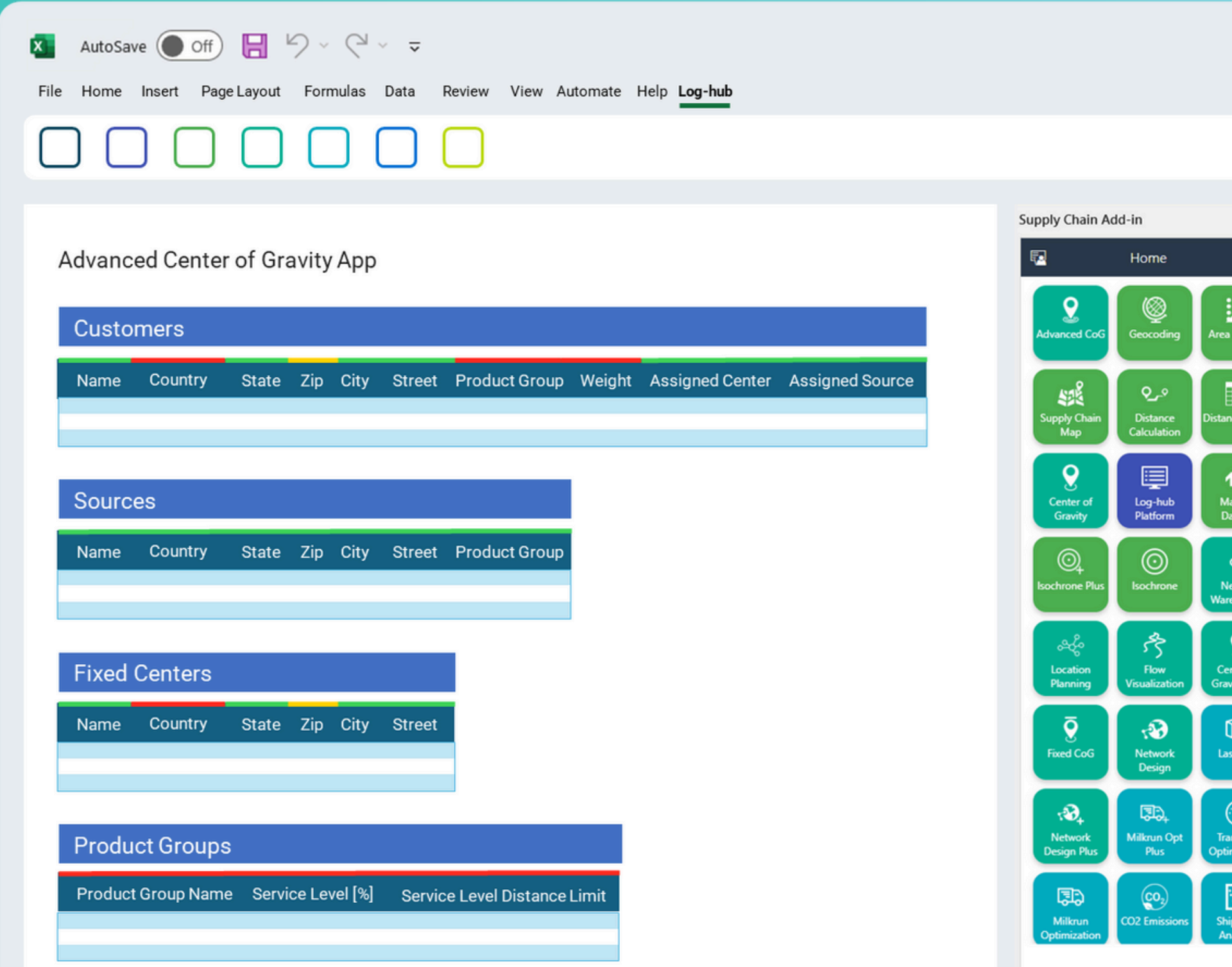
Solution: Finding the right technology

To confront these challenges, the company turned to Supply Chain Apps from Log-hub. This technology enabled:

- simulation of the current ("AS-IS") distribution network
- high service levels
- evaluation of alternative network configurations.

This comprehensive analysis was critical in driving the strategic decision to overhaul the distribution network, ensuring it could support increased business levels and meet the evolving demands of the market.

To address the existing challenges and prepare for the anticipated surge in demand, the company leveraged two powerful tools from Log-hub's Supply Chain Apps portfolio: the Advanced Center of Gravity App and the Network Design Plus App. These apps offered seamless compatibility, with the Advanced Center of Gravity App serving as an ideal starting point for identifying potential distribution center (DC) locations, and the Network Design Plus App providing robust capabilities for simulating both the AS-IS and TO-BE scenarios.





Step 1: Mapping the AS-IS Network

Simulating the current network using Network Design + App

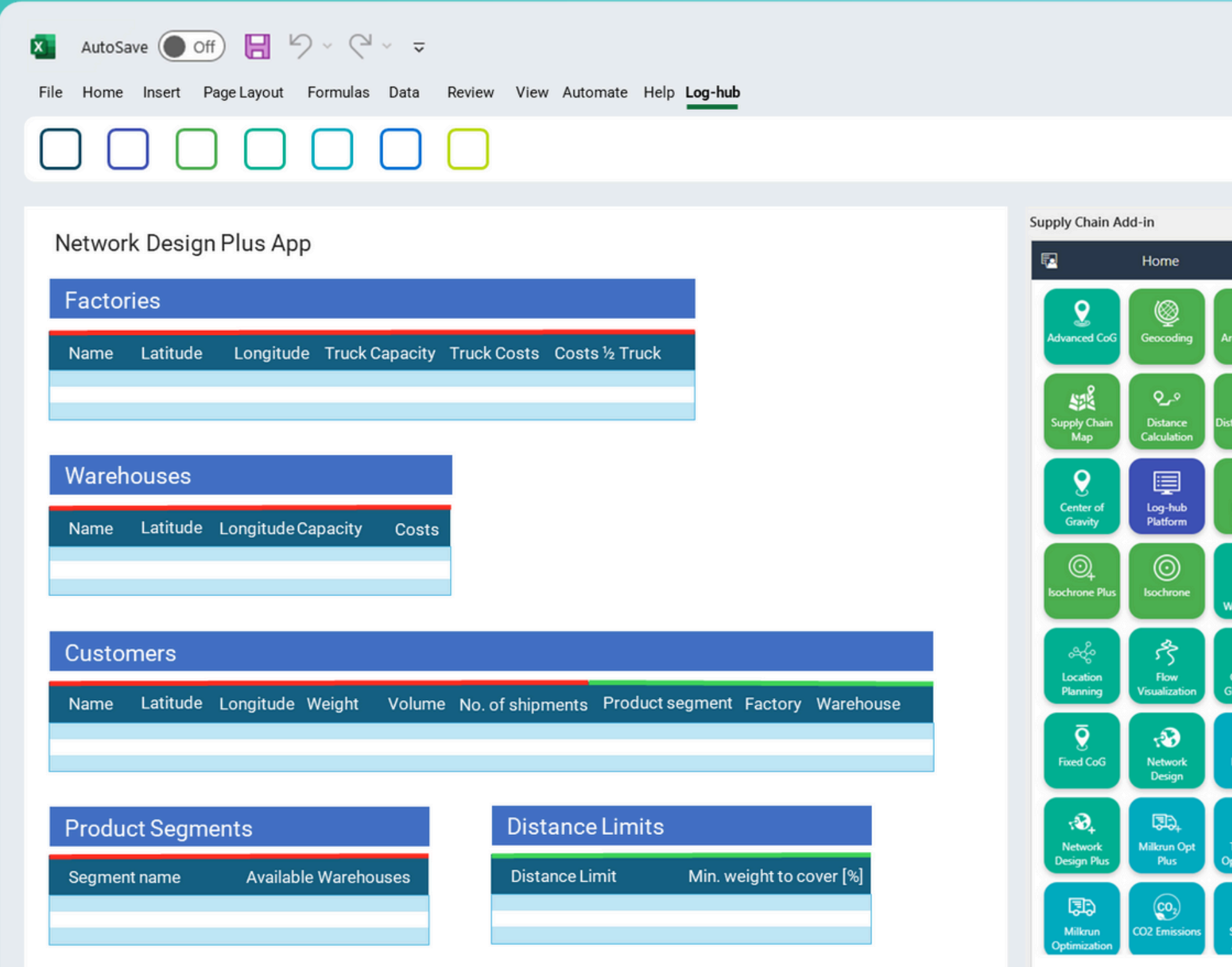
To map the current network, the company started with the Network Design Plus App.

In the app itself, the retailer’s two production sites—Neuenburg (supplying Accessories) and Stendal (supplying Shoes and Activewear)—were entered in the Factories table along with their output capacities and transport rates.

Next, they defined their single central warehouse in Hesse in the Warehouses table, specifying its fixed operating costs and any penalties for exceeding handling capacity.

In the Customers table, all 250 retail locations were loaded with annual shipment forecasts (roughly 50 shipments per store per year) and tagged by product category to ensure each delivery originated from the correct factory.

To mirror real-world practice, they turned inbound consolidation off (each factory shipped direct to Hesse, with no upstream consolidation).



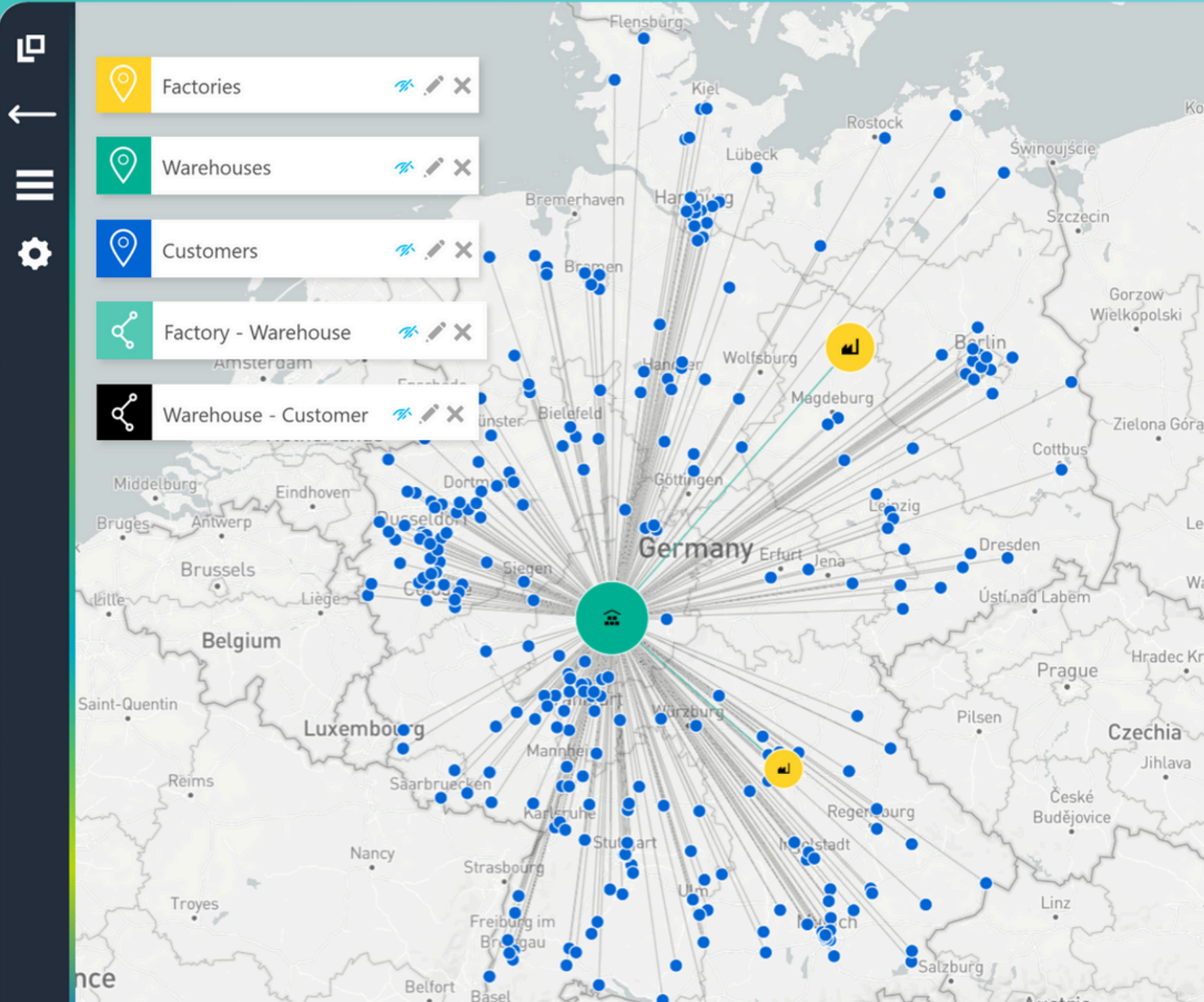


Step 1: Mapping the AS-IS Network

Simulating the current network using Network Design + App

Upon completion of the simulation, the current network design was visualized on an interactive map, and detailed cost analyses were reviewed via output tables and dashboards. The simulation yielded the following cost breakdown:

	AS-IS NETWORK COSTS [\$]
FIXED COSTS	77,083
VARIABLE COSTS	472,824
INBOUND TRANSPORT COSTS	75,721
OUTBOUND TRANSPORT COSTS	83,657
TOTAL COSTS	709,285





Step 2: Identifying Candidate Distribution Centers

Warehouse Site Selection Using Advanced Center of Gravity (CoG) App

Armed with the as-is baseline, the team then leveraged the Advanced Center-of-Gravity (CoG) App to generate a data-driven shortlist of potential warehouse locations tailored by product group and service-level targets.

In this tool, each of the 250 stores was again entered in the Customers table, annotated with its annual demand and product category. The two factories were listed in the Sources table, linked to the categories they supply. No fixed centers were forced into the model, reflecting the retailer’s willingness to retire the Hesse warehouse if superior alternatives emerged.

In the Product Group table, the team specified that 92 percent of all deliveries in each category must originate from a warehouse no more than 200 kilometers from the customer. Finally, they set an outbound-to-inbound cost ratio of 1.15 to properly weight transport versus handling expenses. When the CoG App finished, it produced roughly twenty centroids—cluster centers that balance demand, distance, and service targets—ready for detailed cost analysis.

AutoSave ☐ Off

File Home Insert Page Layout Formulas Data Review View Automate Help **Log-hub**

Customers

Name	Country	State	Zip	City	Street	Product Group	Weight	Assigned Center	Assigned Source

Sources

Name	Country	State	Zip	City	Street	Product Group

Fixed Centers

Name	Country	State	Zip	City	Street

Product Groups

Product Group Name	Service Level [%]	Service Level Distance Limit

Supply Chain Add-in

Advanced CoG

Addresses Lat/Lon

1 Input Data

Generate Template

Customers
Input Adv CoG1A6J424

Sources
Input Adv CoG1L6R8

Fixed Centers
Input Adv CoG1T6Y9

Product Groups
Input Adv CoG1AA6AC9

2 Calculation

Parameters

Distance Unit: Kilometers

Number of Centers : 21 - 21

Outbound/Inbound factor : 1.5

Save Scenario : Off

Calculate

3 Output Data

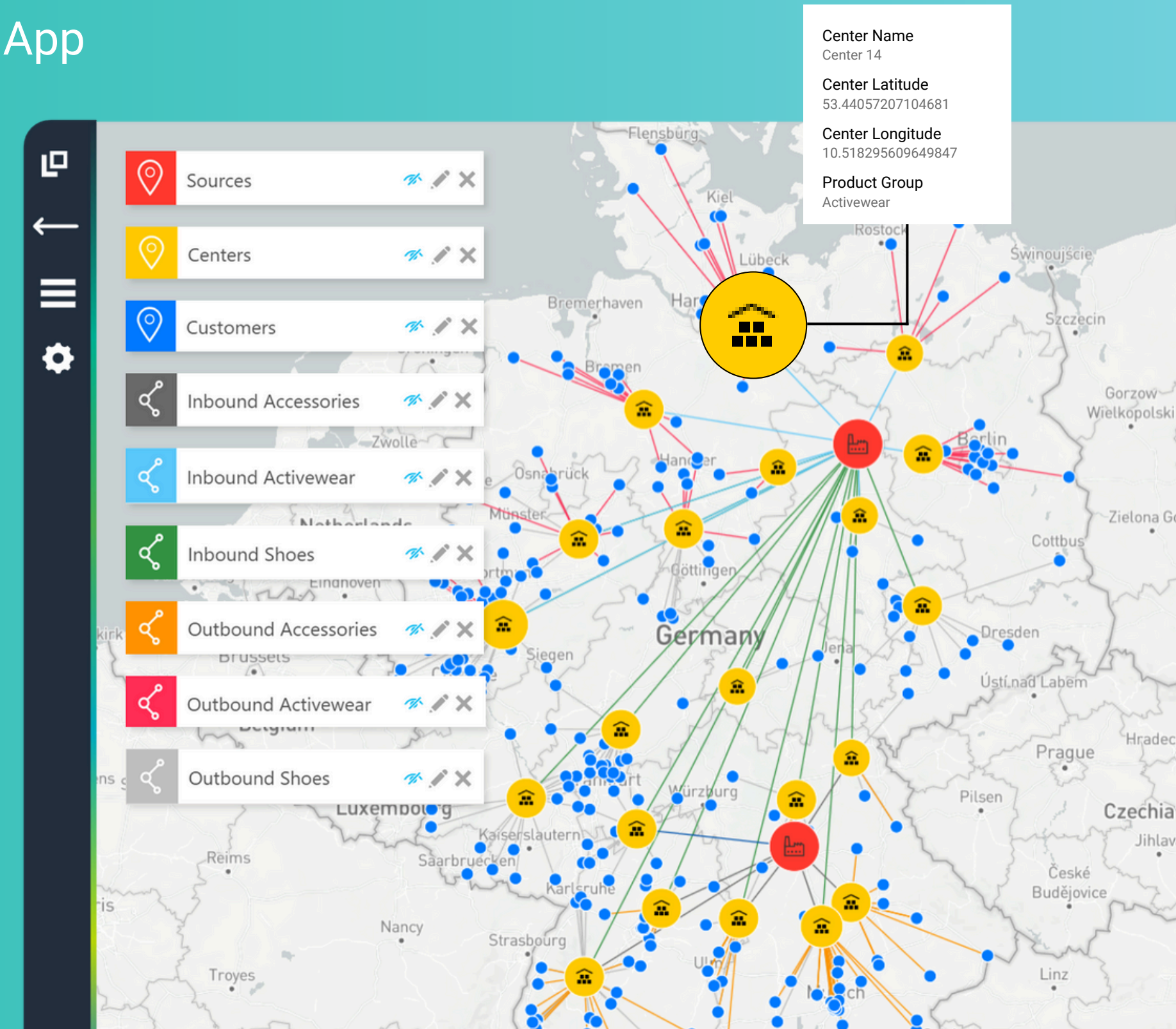


Step 2: Identifying Candidate Distribution Centers

Warehouse Site Selection Using Advanced Center of Gravity (CoG) App

The tool identified 21 optimal warehouse locations, providing the company with a detailed and actionable plan for their future network. These locations were visualized on an interactive map within Log-hub's platform, enabling the team to perform a thorough analysis. The platform's features allowed them to explore the results layer by layer, and customize the map. To ensure the analysis could be revisited and iterated upon, the company utilized Log-hub's scenario-saving feature to securely store the scenario on the platform.

Moreover, the tool provided precise recommendations on which product groups each warehouse should supply. This information proved critical for the next phase of modeling in the Network Design Plus App, as it enabled the company to maintain an optimized network structure that accounted for both product group assignments and strict service level requirements. By incorporating these insights into the TO-BE scenario calculations, the company ensured a robust and efficient network capable of meeting its operational goals.





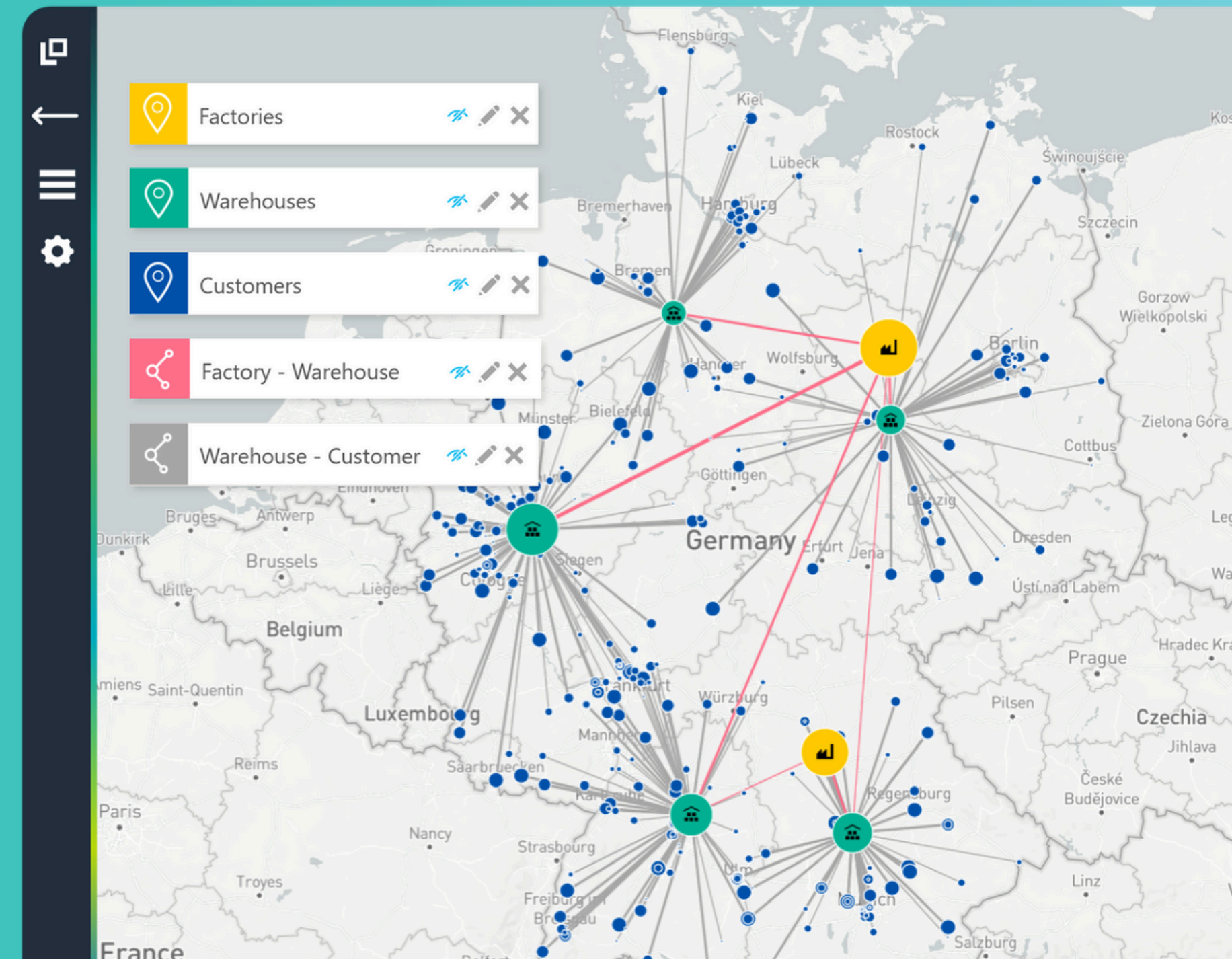
Step 3: Simulating the TO-BE Network

Running First TO BE Scenario

With the candidate sites in hand, the retailer returned to the Network Design App for their “to-be” scenario. The Factories table remained unchanged, and the Customers table was updated to include product group assignments alongside each store’s factory source.

The Warehouses table now included the twenty one candidate sites, each with realistic capacity limits, fixed costs, and per-unit handling charges derived from market benchmarks. In the Product Segments table, they mapped which warehouses could serve which product groups, based on the output from the Advanced Center of Gravity App.

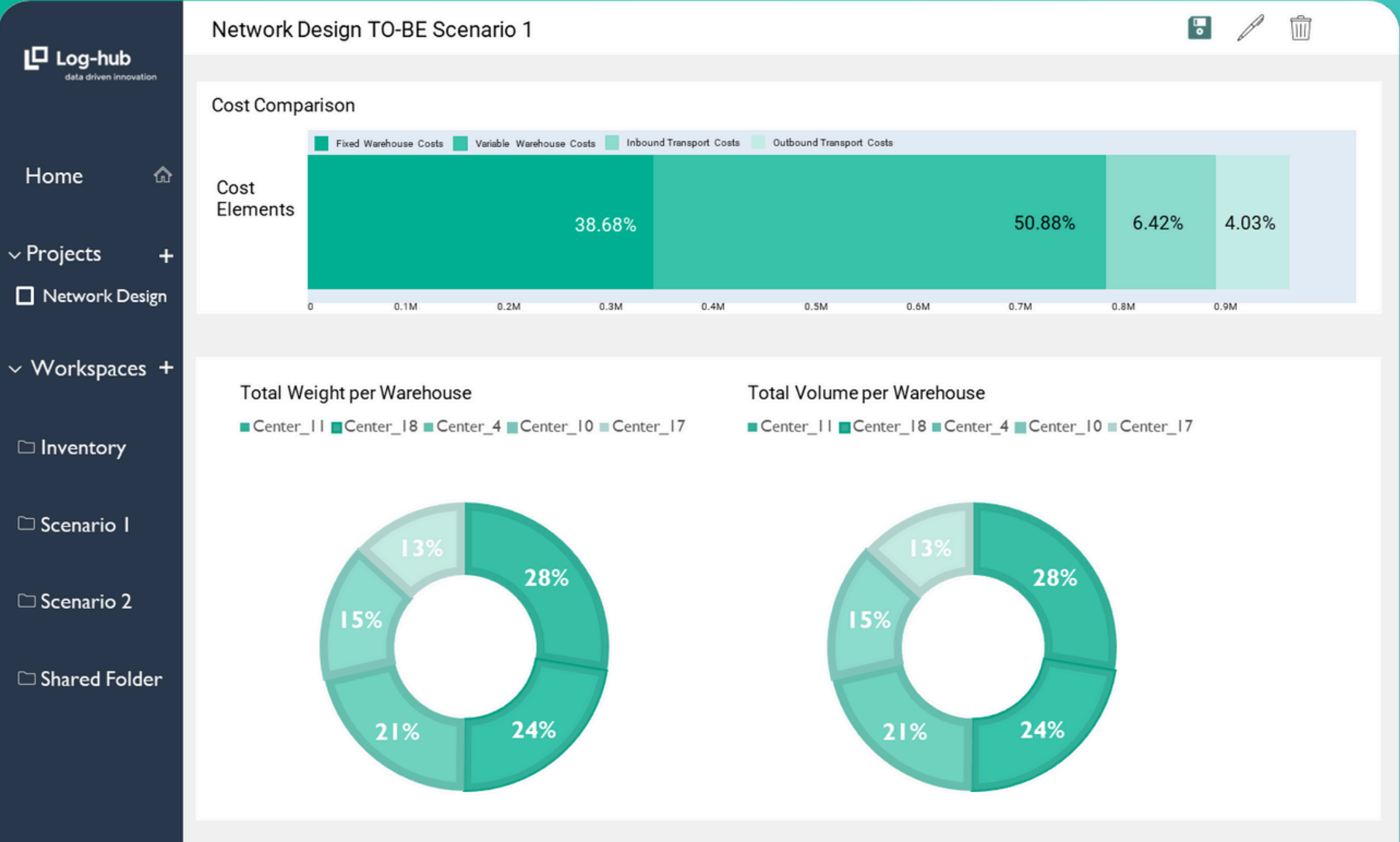
To enforce their delivery promise, they also used the Distance Limit table: 92 percent of shipments must come from a warehouse within 200 km, with a penalty of \$1.50 per kilometer beyond that threshold. This time, inbound consolidation was switched on to allow trucks to combine multiple supplier loads, and multisourcing was enabled so a single store could receive goods from more than one warehouse if optimal. The scenario was saved on the Log-hub Platform, using the Save Scenario feature.





Step 4: Analyzing T0-BE Scenario 1

What are the numbers saying?



	SCENARIO 1 COSTS [\$]
FIXED COSTS	359,416
VARIABLE COSTS	472,824
INBOUND TRANSPORT COSTS	59,639
OUTBOUND TRANSPORT COSTS	37,438
TOTAL COSTS	929,317

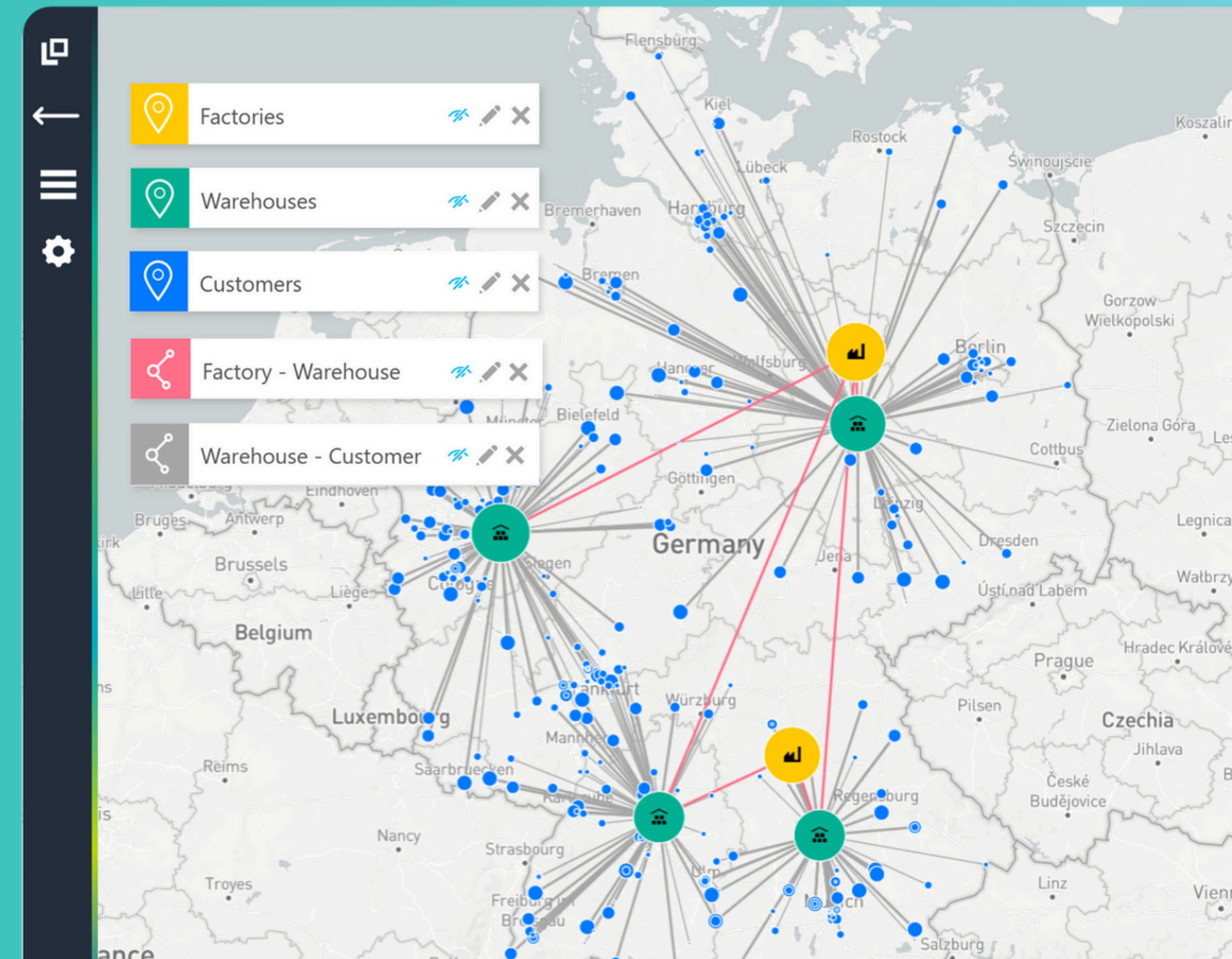


Step 5: Adjusting the Solution

Running Second TO BE Scenario

To explore trade-offs between network complexity and cost, the company adjusted the model to limit the selection to only four warehouses. This adjustment enabled them to assess how a more simplified network configuration would affect key metrics such as costs, service levels, and operational efficiency. By doing so, they could evaluate the balance between achieving operational simplicity and maintaining strong performance standards.

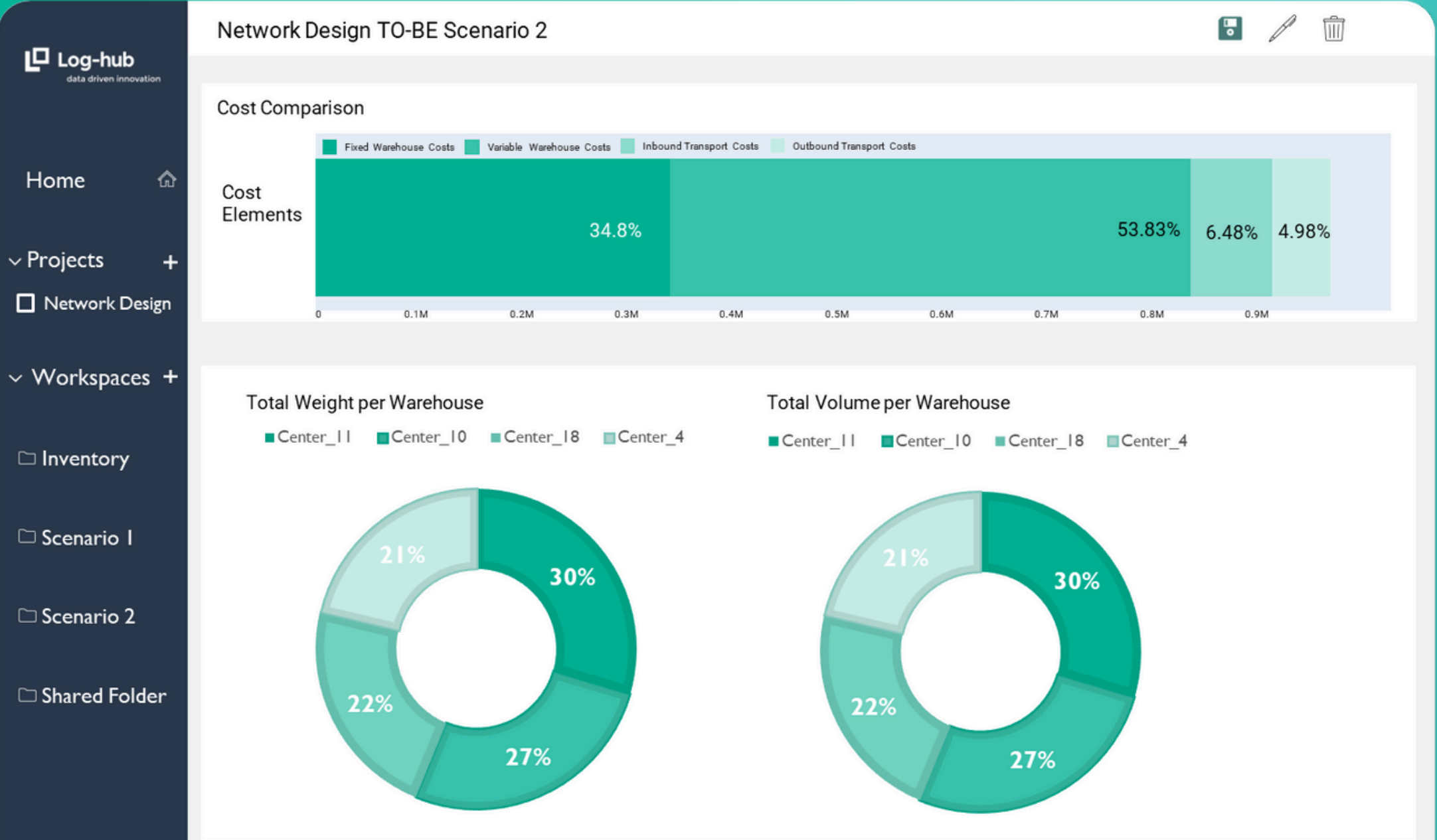
To implement this change, they modified the parameters to explicitly set the model to select four warehouses. This scenario was saved on the Log-hub platform using the save scenario feature, ensuring it could be revisited for future analysis. This approach allowed them to compare the simplified four-warehouse scenario with other configurations, offering a clear perspective on the potential trade-offs and benefits. The results were first visualized on an interactive map.





Step 6: Analyzing T0-BE Scenario 2

What are the numbers saying?



	SCENARIO 2 COSTS [\$]
FIXED COSTS	305,666
VARIABLE COSTS	472,824
INBOUND TRANSPORT COSTS	56,917
OUTBOUND TRANSPORT COSTS	42,984
TOTAL COSTS	878,391

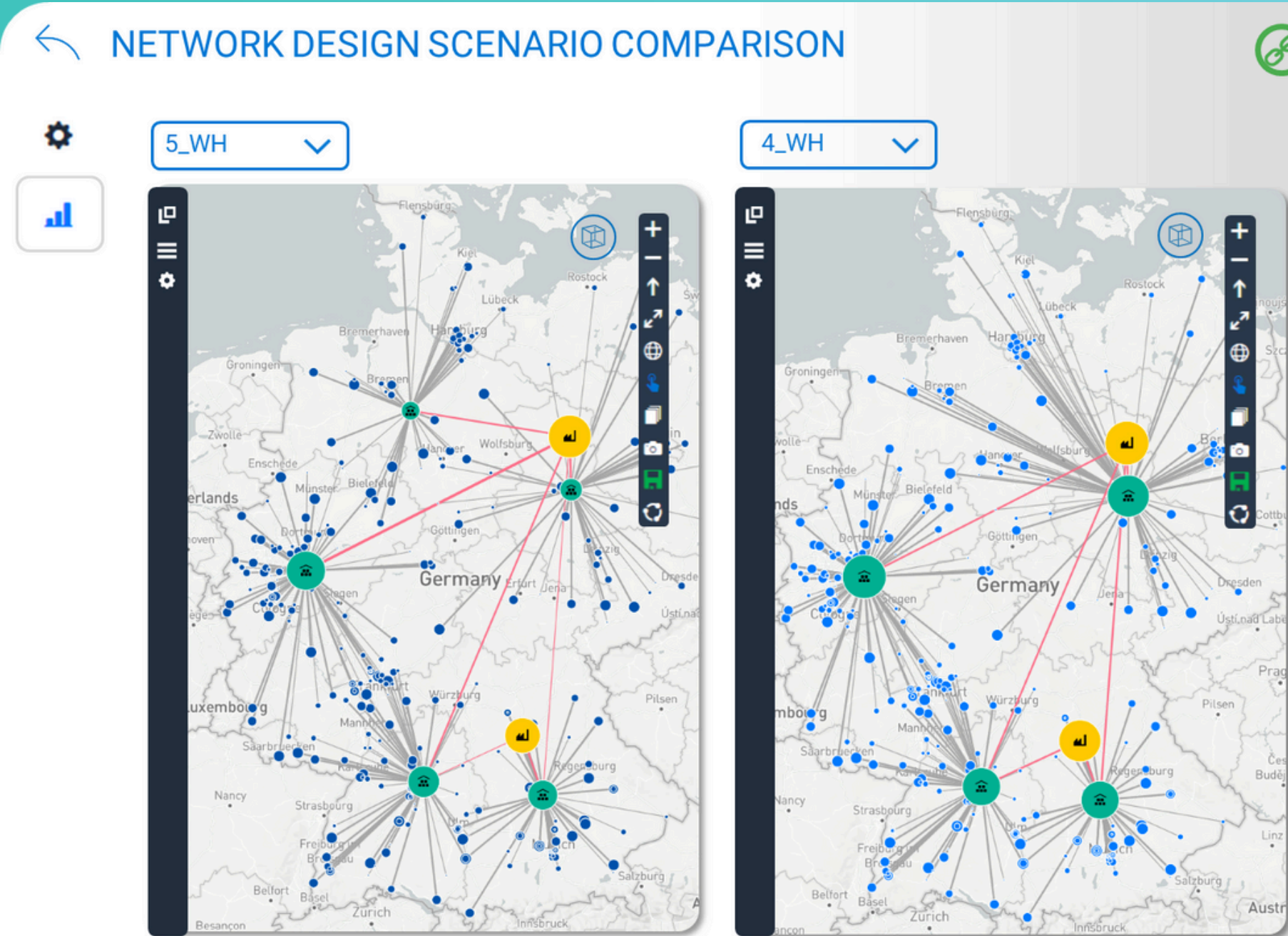


Step 7: Making the Decision

Comparing the TO-BE Scenarios

By comparing these two scenarios, with Log-hub’s Scenario Comparison feature, the retailer could see how one fewer facility would increase average haul distances, push up both transport and penalty costs, and potentially require higher inventory buffers—insights that directly inform their final rollout decision.

	SCENARIO 1 (5 WH)	SCENARIO 2 (4 WH)
FIXED COSTS	359,416	305,666
VARIABLE COSTS	472,824	472,824
INBOUND TRANSPORT COSTS	59,639	56,917
OUTBOUND TRANSPORT COSTS	37,438	42,984
TOTAL COSTS	929,317	878,391



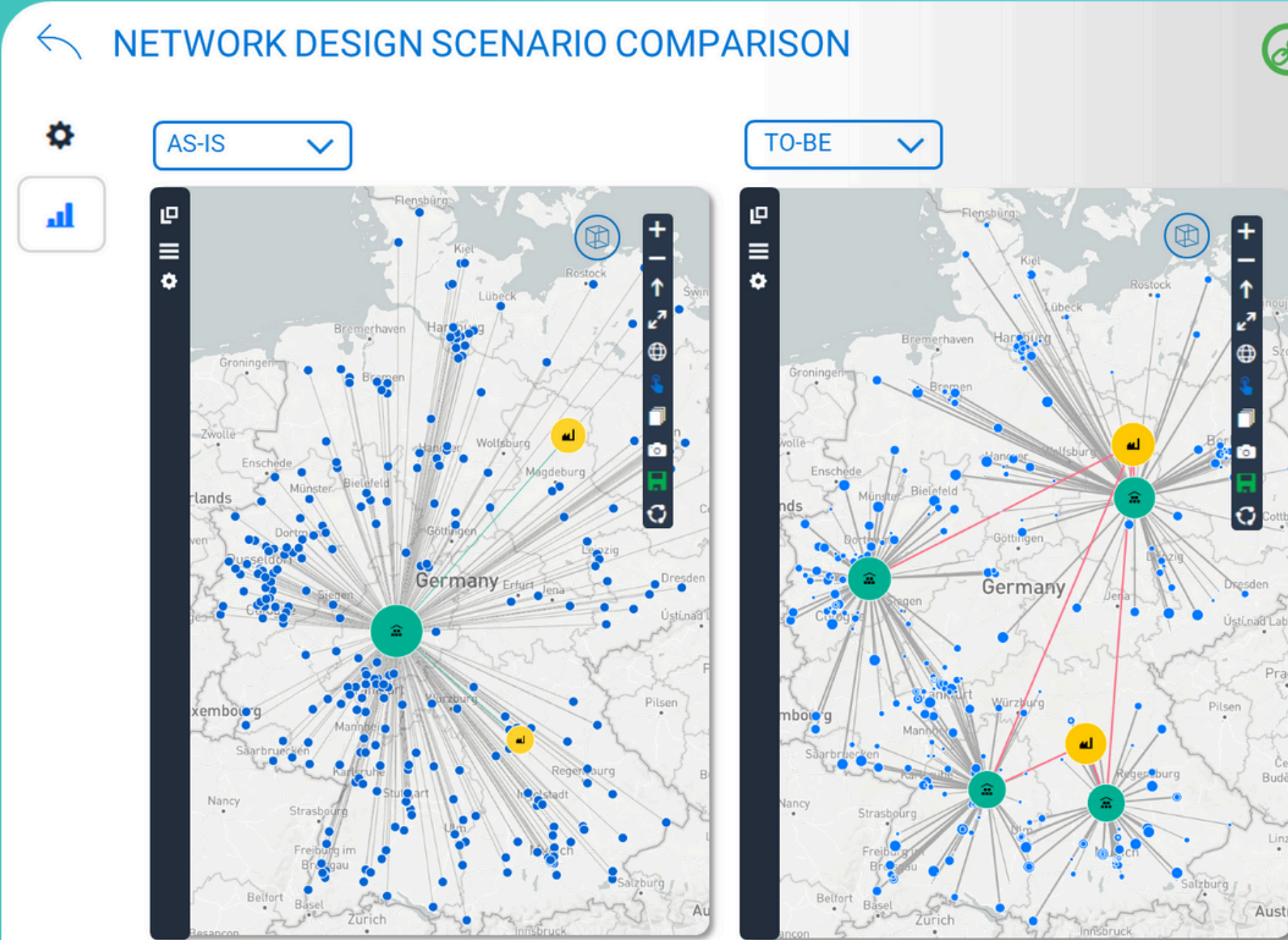


Step 8: Analyzing the Outcomes

Comparing AS IS with TO BE

After analyzing the two TO-BE scenarios, the company found that the option with four warehouses reduced total costs by 5.48%, despite slightly higher transport expenses. The first scenario had higher costs due to elevated fixed costs, leading them to select Scenario 2. They compared KPIs from the AS-IS scenario to the TO-BE scenarios to assess the improvements.

	AS-S	TO-BE
FIXED COSTS	77,083	305,666
VARIABLE COSTS	472,824	472,824
INBOUND TRANSPORT COSTS	75,721	56,917
OUTBOUND TRANSPORT COSTS	83,657	42,984
TOTAL COSTS	709,285	878,391



Conclusion

By adding three new warehouses, the company transformed its supply chain network, supporting the needs of their growing business. While costs increased by 23.84%, this investment enabled them to serve more customers effectively and meet sustainability goals. Leveraging Log-hub's Advanced Center of Gravity App and Network Design Plus App, the company optimized its operations to balance cost, service quality, and sustainability.

KEY OUTCOMES

- ✓ SURPASSED THE 92% SERVICE LEVEL TARGET, ENSURING FASTER DELIVERIES.
- ✓ REDUCED CO2 EMISSIONS BY POSITIONING WAREHOUSES CLOSER TO CUSTOMERS.
- ✓ ENABLED EFFICIENT SERVICE FOR A GROWING CUSTOMER BASE.
- ✓ ACCEPTED A 23.84% COST INCREASE AS A VALUABLE INVESTMENT FOR LONG-TERM GROWTH.

Now it's your turn...



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