

Synchronization Of Ocean Export Supply Chain

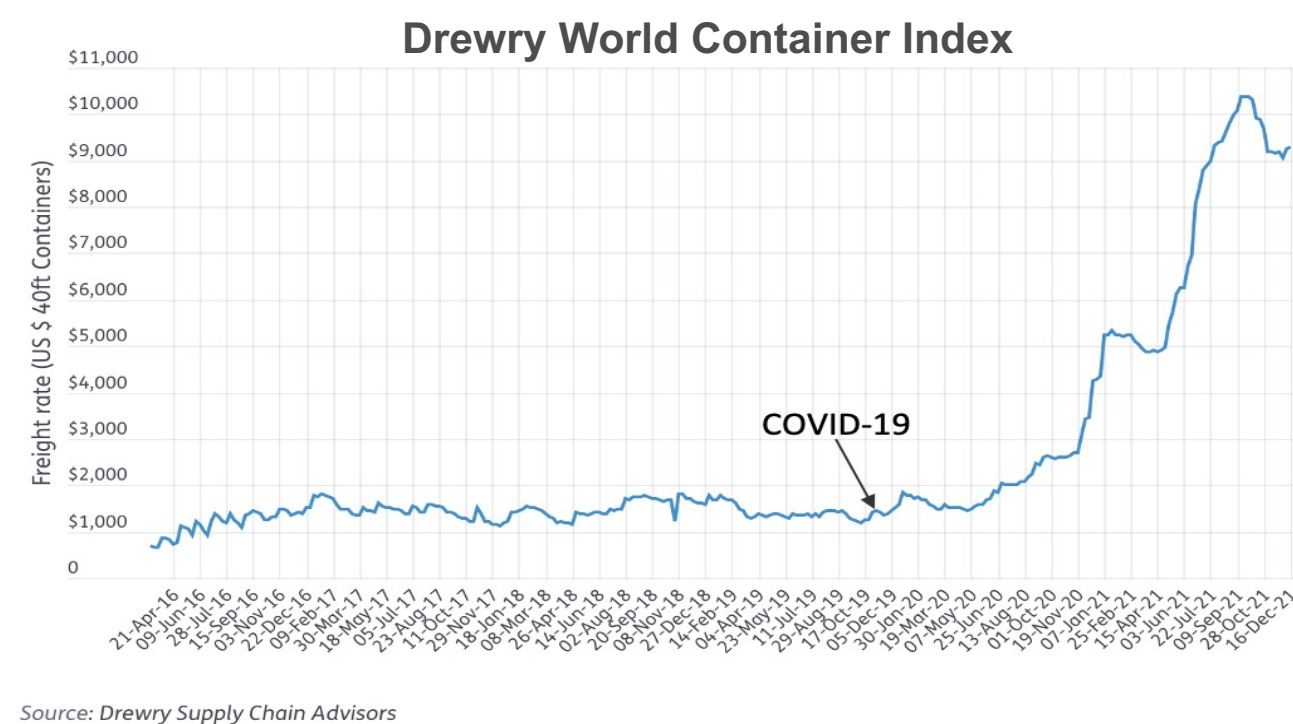
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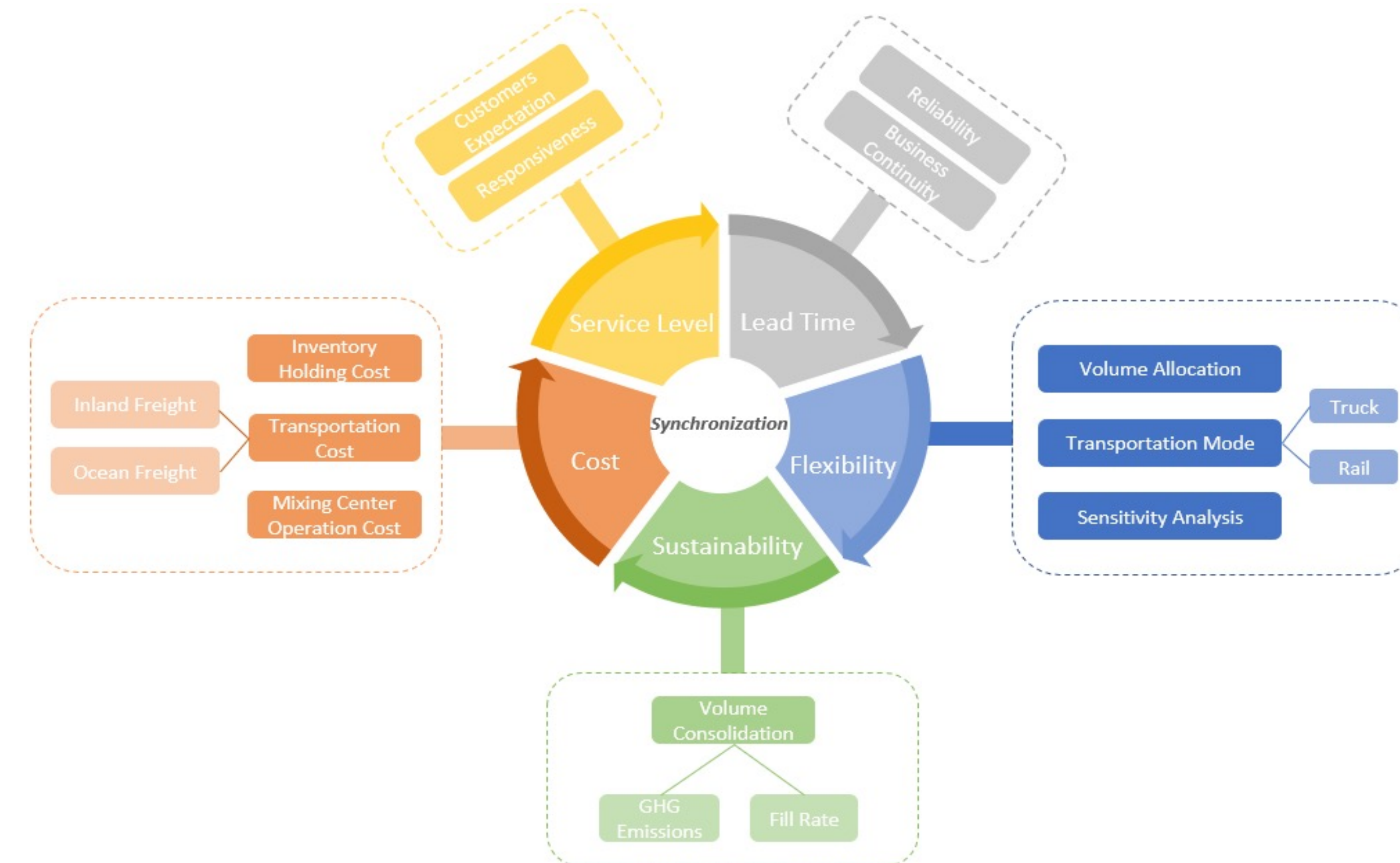
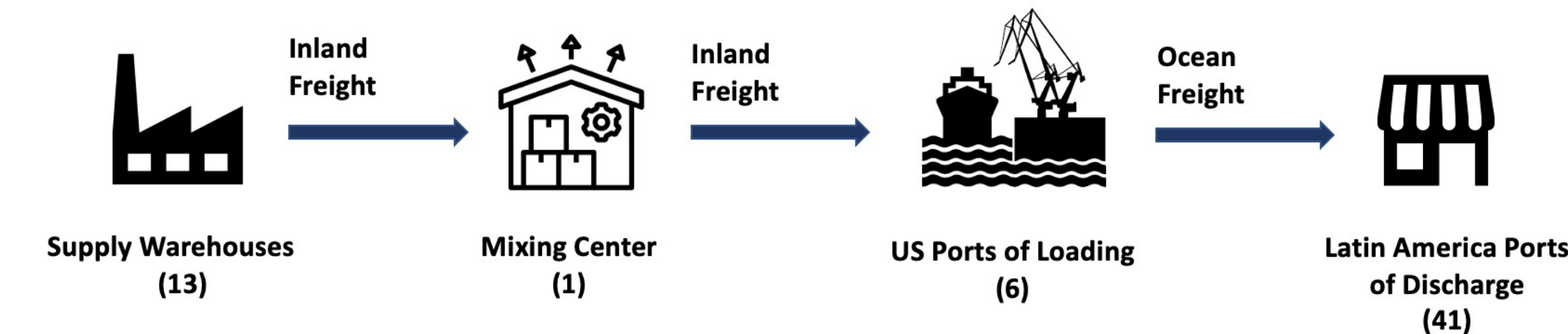
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Sponsor: Consumer Packaged Goods Company

Motivation / Background



- Ocean freight rate increased by 800% as compared to pre-pandemic.
- Schedule reliability dropped from 75% to 35% in 2020-2021.



Insights / Results

- Optimized network design helps to reduce overall supply chain cost. In this case, the reduction represented 9% - while the inventory holding cost increased by 60%, the transportation cost reduced by 28%.
- Supply chain cost is most sensitive to the holding cost from supply warehouses to mixing center and mixing center cost.
- Offering both truck and rail options for inland transport reduces costs and increases flexibility.
- Companies must challenge the status quo and leverage quantitative models to consider possible supply chain network design options for improved synchronization.

Key Question

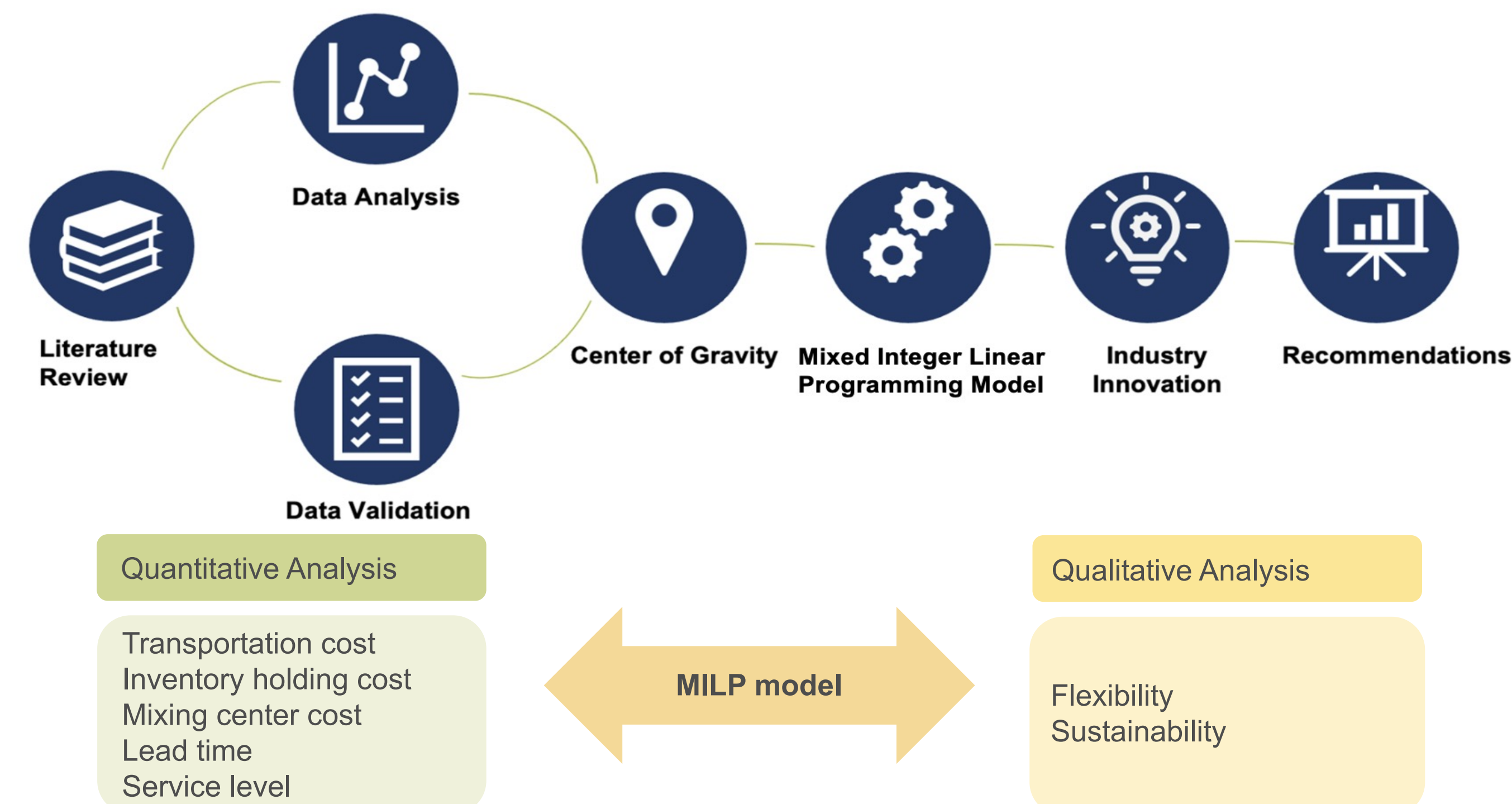
1. What to consider in designing a synchronized supply chain for ocean export?
2. How do companies make tradeoff among factors affecting supply chain synchronization?

Relevant Literature

Acero, B., Saenz, M.J. and Luzzini, D. (2022). Introducing synchromodality: One missing link between transportation and supply chain management. *Journal of Supply Chain Management*, 58, 51-64.

Burnette, M., Meline, J. & Pellathy, D. (2020). End-to-End Supply Chain Synchronization Orchestrating a Winning Strategy.

Methodology



Contribution

- To identify optimal supply chain **network design**, including facility location, volume allocation, and transportation mode.
- To analyze supply chain synchronization **tradeoffs**.
- To provide a **framework** for companies to run supply chain design scenarios for decision making.

Michelle Ramírez



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