Omnichannel Supply Chain Transformation for Third Party Logistics Providers

MASc-SCM Candidates:

Marion Konnerth

Neysan Kamranpour

Sponsoring Company:

Advisors:

Dr. Eva Ponce

Dr. Marina Mattos

AGENDA

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A.P. Moller - Maersk at a glance

Supply Chain Management

Visibility, consistency and optimization of the flow throughout the supply chain.

Warehousing and Distribution

Strategic warehousing locations with best in class tools, processes and systems.

Design and Optimization

Creating a more efficient and cost-effective logistics network.

http://www.mearsk.com/

Why is the project relevant?

34% RESEARCH PRODUCTS ONLINE WHILE SHOPPING IN STORE

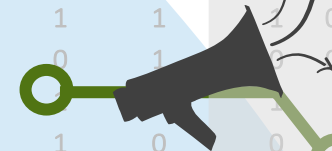**70** CONSUMERS SHOP ONLINE AT LEAST ONCE PER MONTH

57% PREFER LOCAL STORES

http://www.absatzwirtschaft.de/

31% LOOK FOR PRODUCTS ONLINE AFTER SEEING THE ADVERTISING

52% WOULD LIKE TO SCAN QR CODES IN STORE

Online and Offline retail merge together

Consumer expectation increase

increased pressure on logistic providers

Online and Offline retail merge

China - Online and Offline Retail Sales
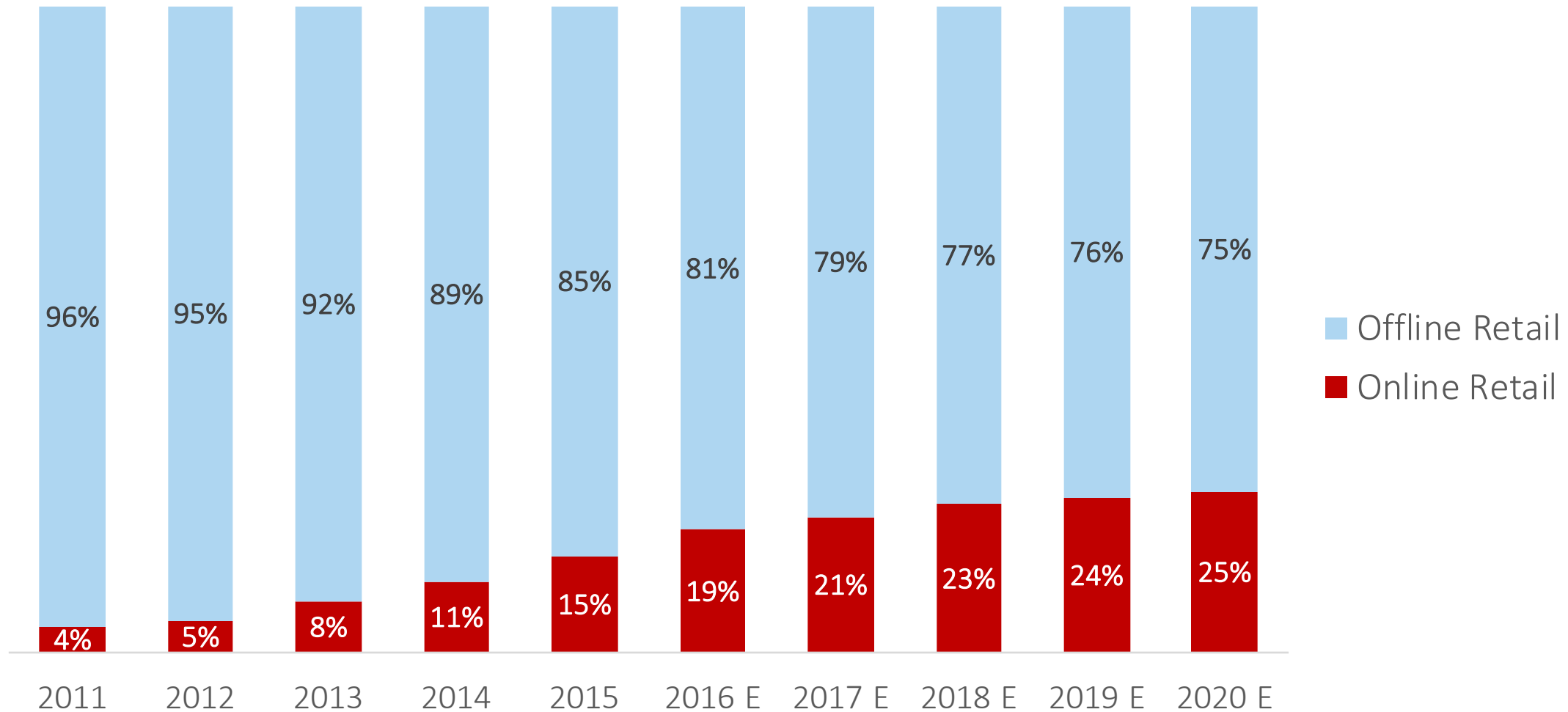
Offline Retail
Online Retail

Year	Offline	Online
2011	96%	4%
2012	95%	5%
2013	92%	8%
2014	89%	11%
2015	85%	15%
2016 E	81%	19%
2017 E	79%	21%
2018 E	77%	23%
2019 E	76%	24%
2020 E	75%	25%

Eurominitor, National Bureau of Statistics

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Supply chain evolution
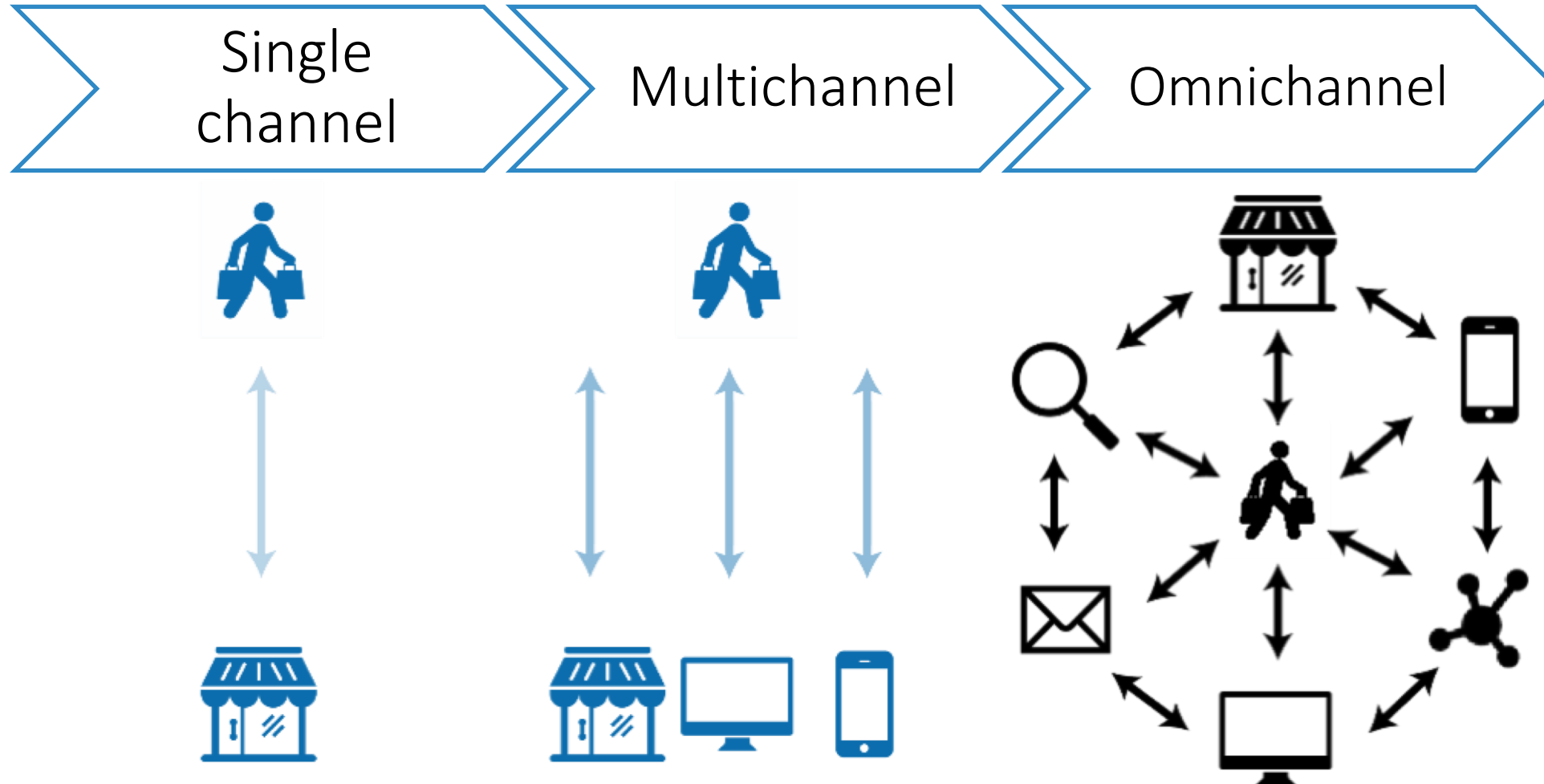
Single channel → Multichannel → Omnichannel

Multichannel to Omnichannel transformation

How will the supply chain transform to support store fulfilment for E-commerce consumers?
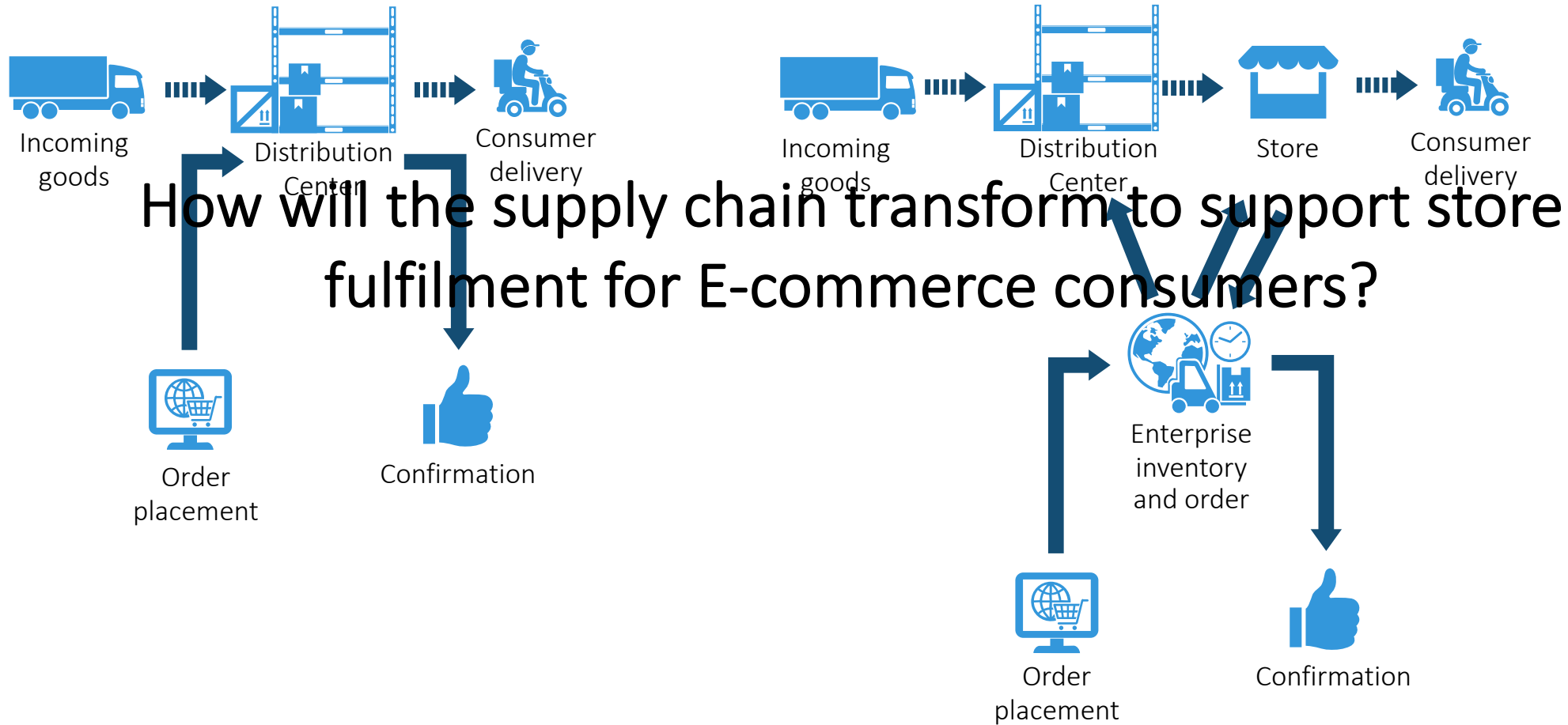
How will the supply chain transform to support store fulfilment for E-commerce consumers?

Omnichannel Order Management Systems (OMS)

What OMS features will be necessary to transform a multichannel supply chain into an omnichannel supply chain?
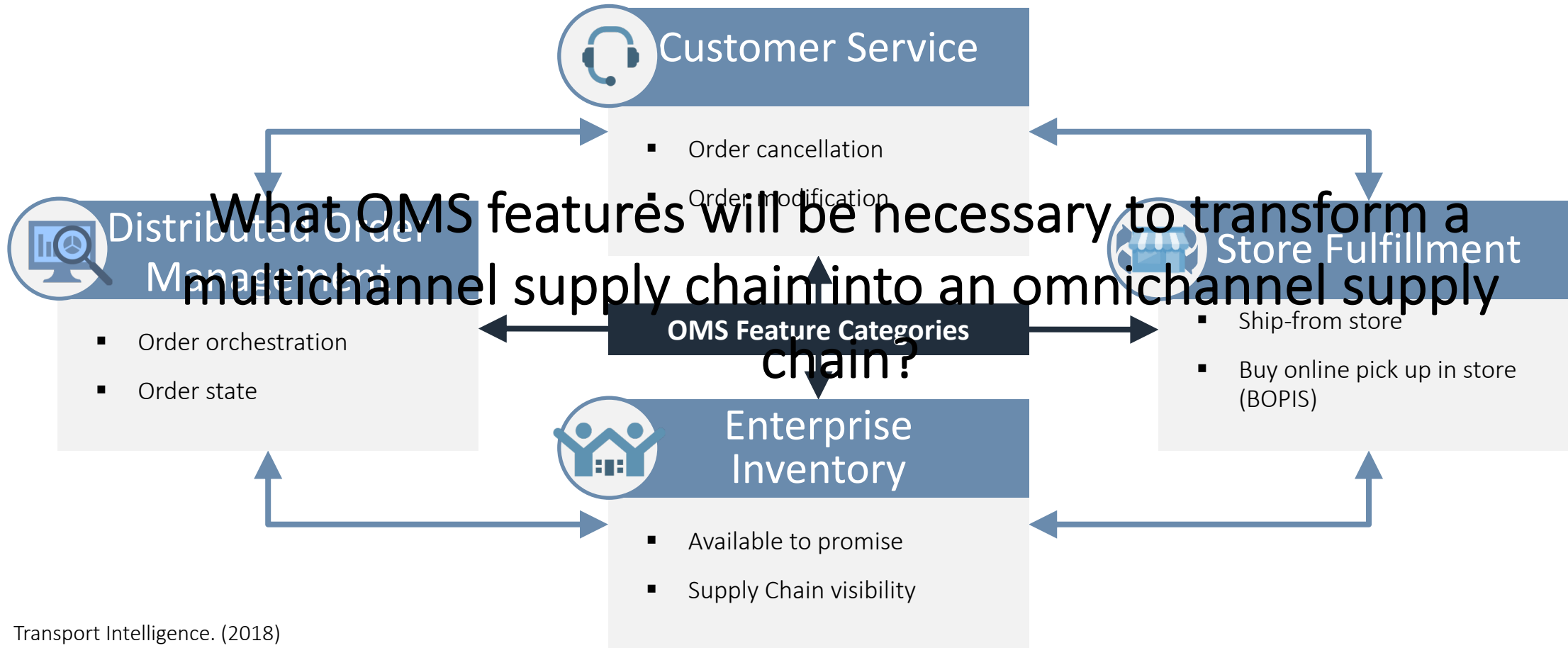
Customer Service
- Order cancellation
- Order modification

Distributed Order Management
- Order orchestration
- Order state

OMS Feature Categories

Store Fulfillment
- Ship-from store
- Buy online pick up in store (BOPIS)

Enterprise Inventory
- Available to promise
- Supply Chain visibility
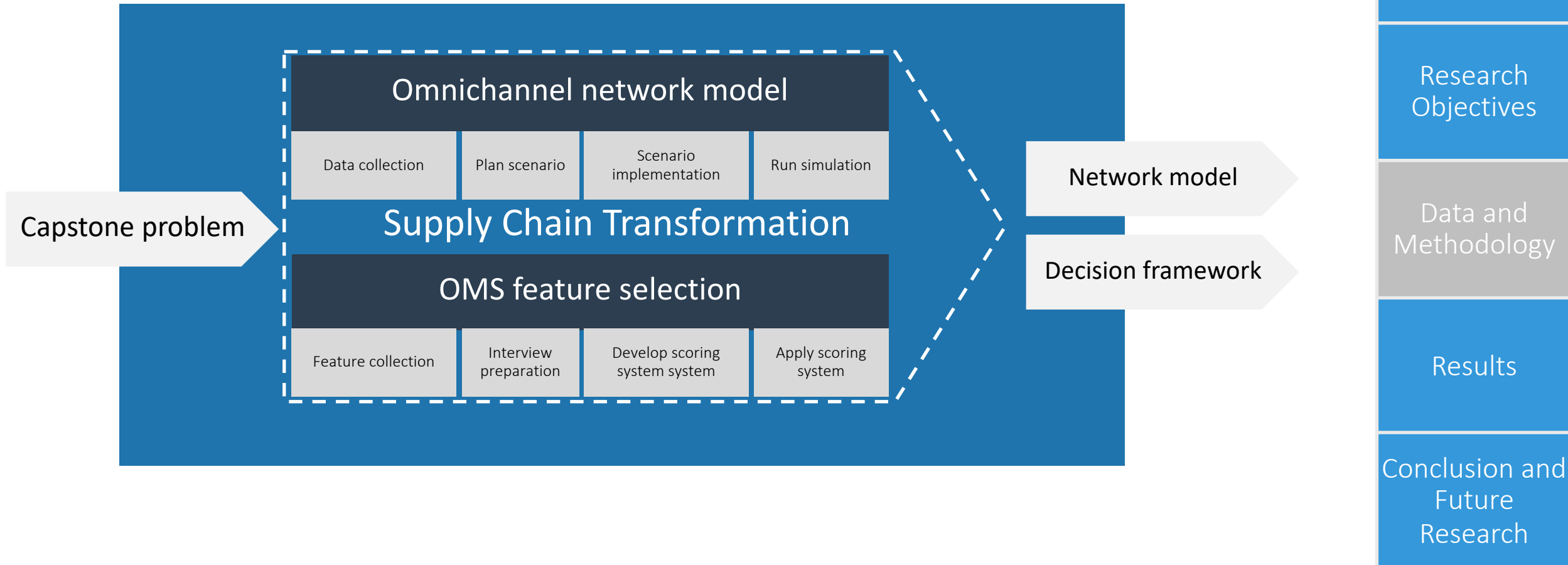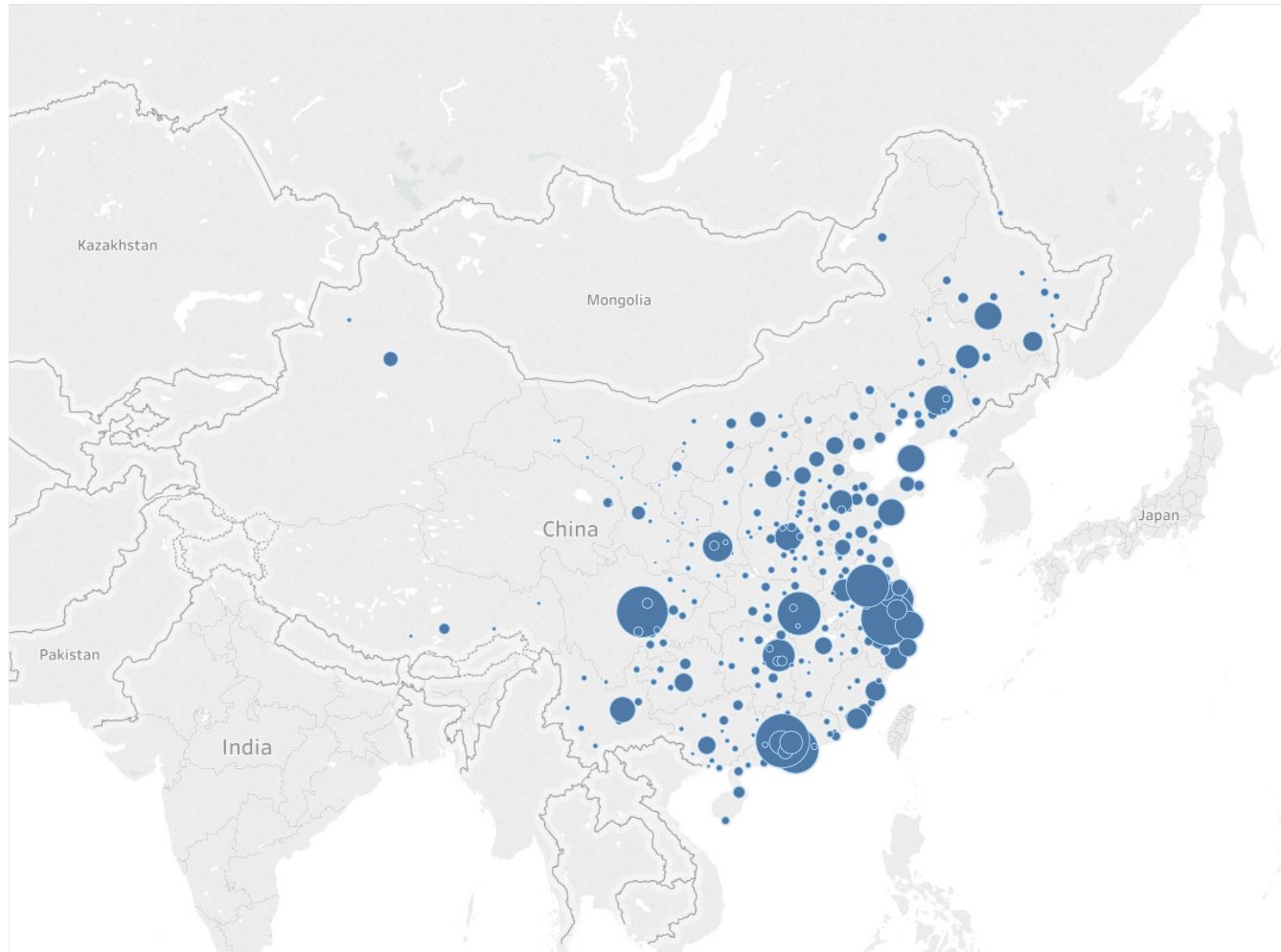
Transport Intelligence. (2018)
Witcher, B. & Silverman, (2016)
Witcher, B. (2018).

Approach to answer the research questions

Capstone problem →

Supply Chain Transformation

Omnichannel network model
- Data collection
- Plan scenario
- Scenario implementation
- Run simulation

OMS feature selection
- Feature collection
- Interview preparation
- Develop scoring system system
- Apply scoring system

→ Network model

→ Decision framework

Density and Distribution of Orders in 2018

Count of Order ID
- 1
- 2,000
- 4,000
- 6,000
- 8,000
- 10,630

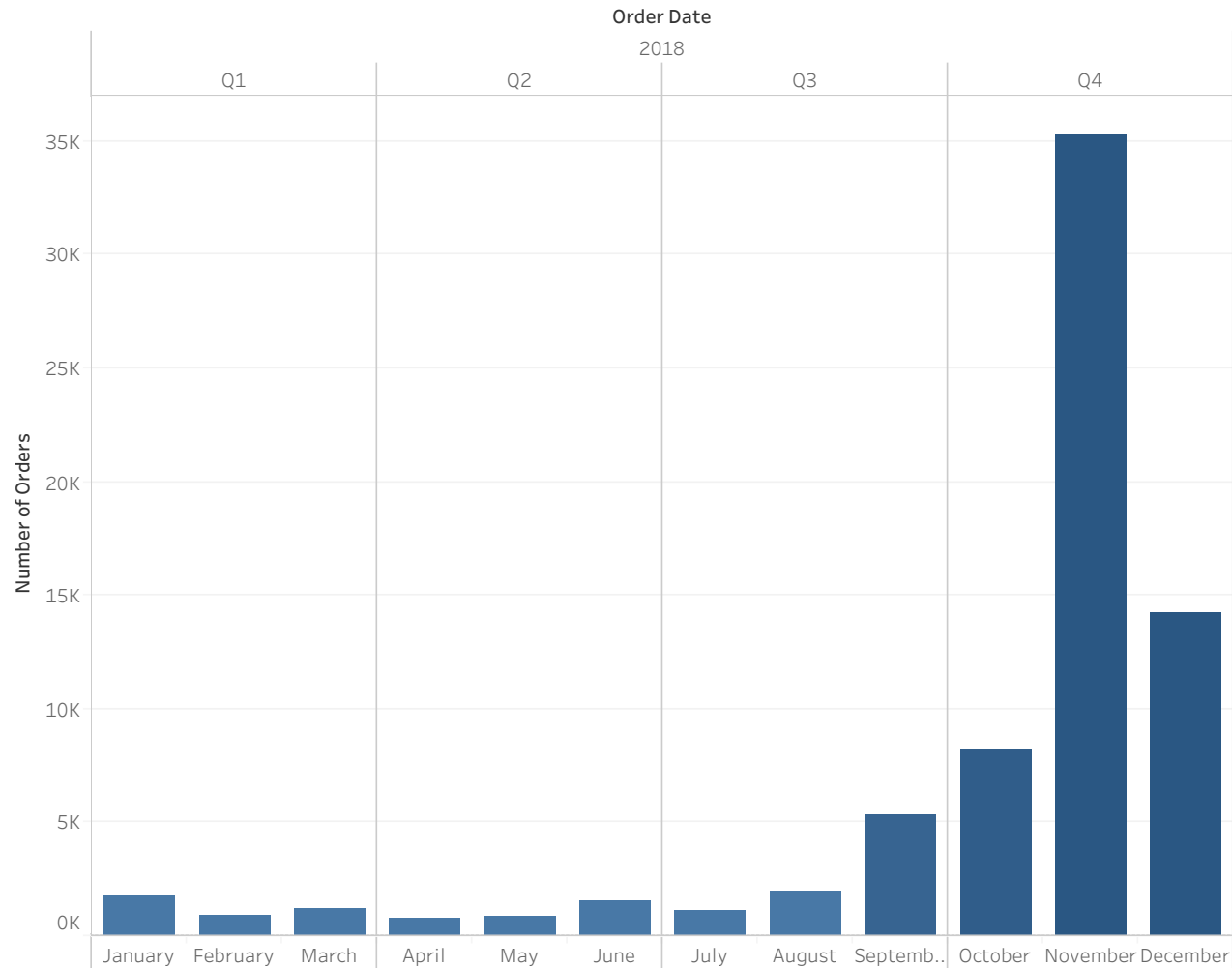- 70,000 orders in 2018
- 48,000 e-commerce consumers

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Distribution of Orders Throughout the Year

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- Order volume changes due to promotions and singles day event on 11.11

- Above average December sales on 12.12

Scenario 1 – Current Baseline Multichannel SC
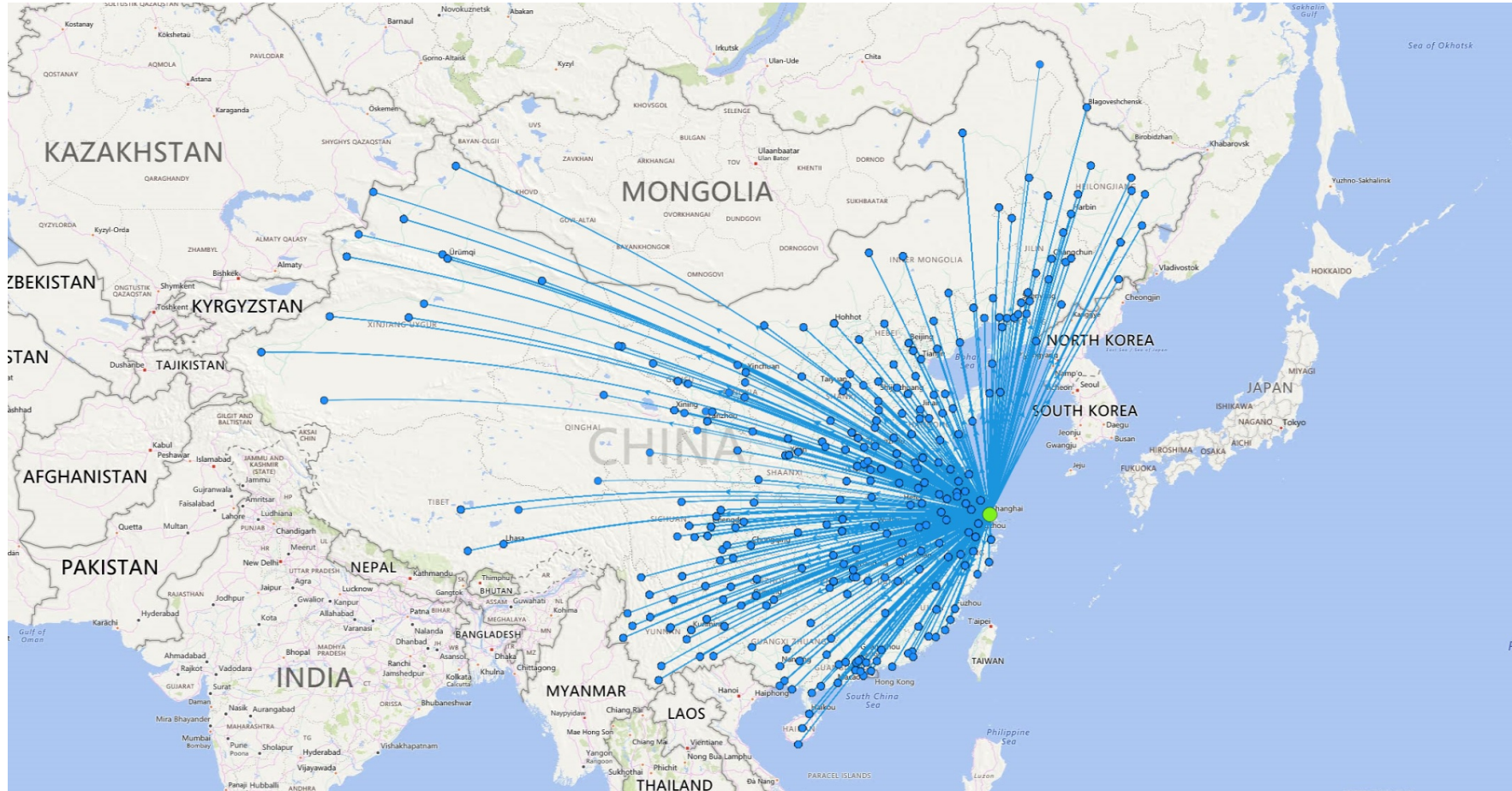
Current state - Shanghai DC fulfills all e-commerce orders in China.
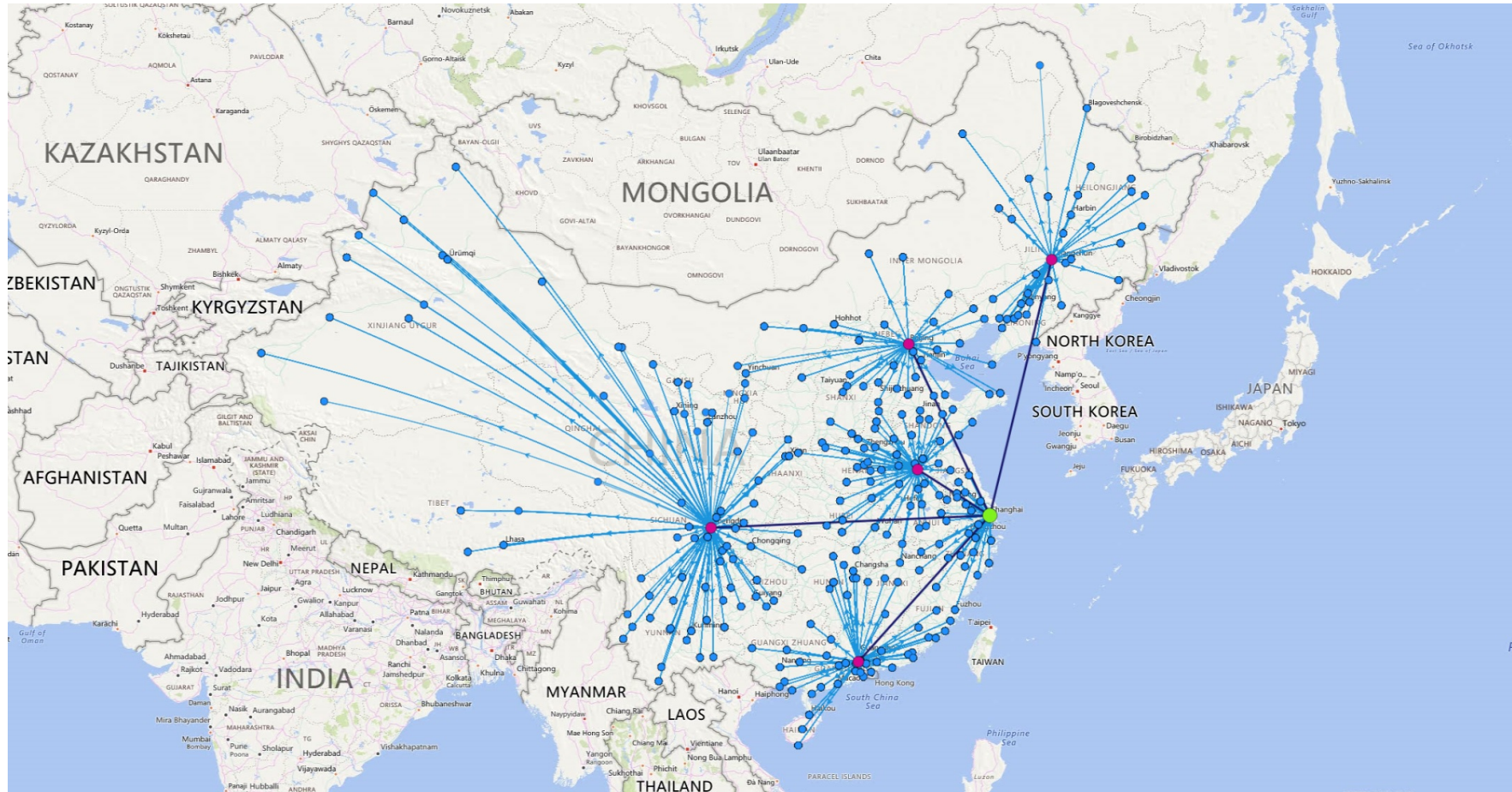Transportation cost: RMB 7,000,000

Scenario 2 – Omnichannel with no capacity constraint

Potential store fulfilment locations added in Beijing, Chengdu, Guangzhou, Suzhou and Changchun. Transportation cost reduction to RMB 2,000,000.

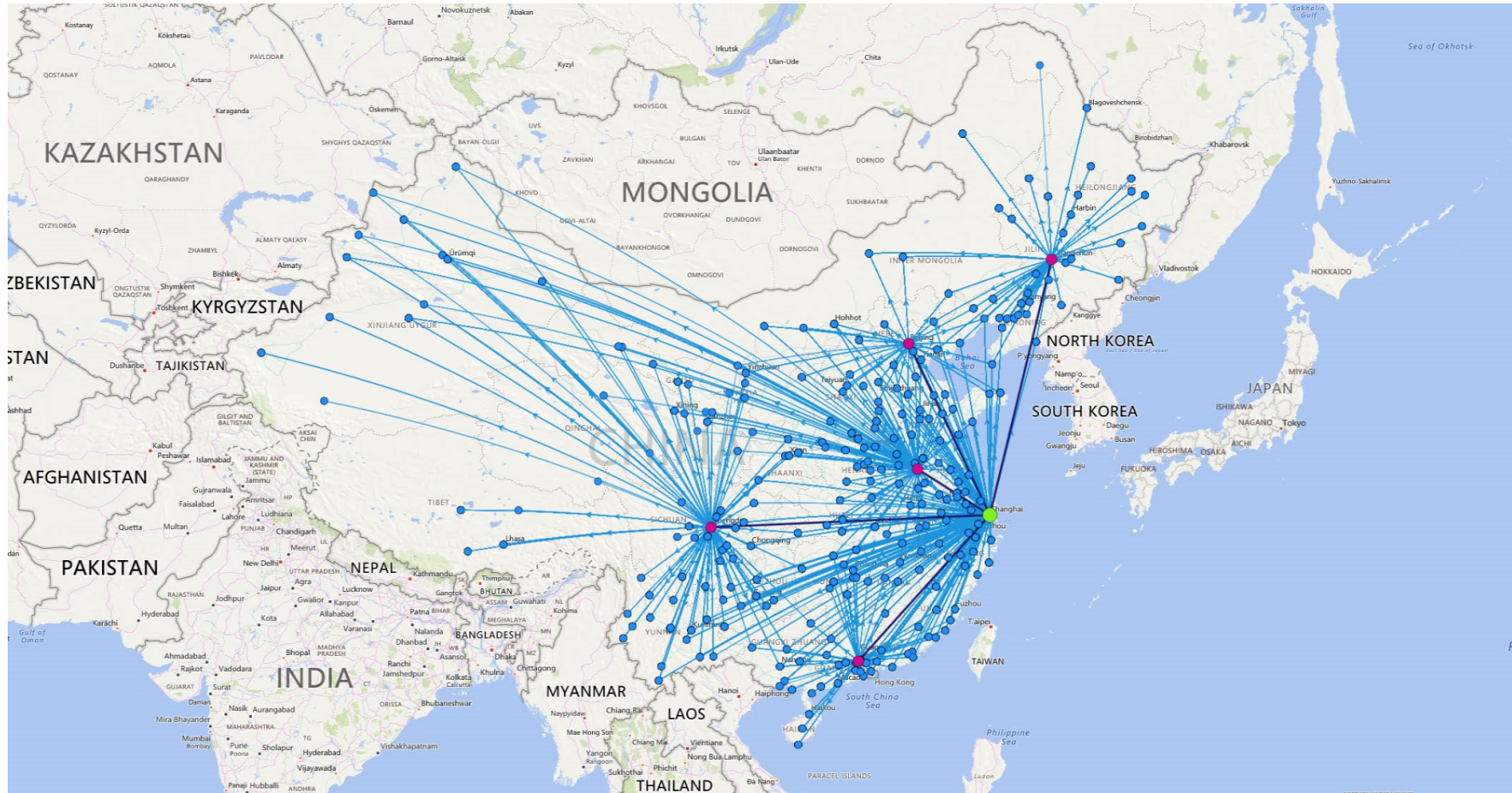# Scenario 3 – Omnichannel with constrained capacity

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Shop capacity constrained to 2,000 items
Transportation cost RMB 3,200,000

Scenario 4 – Omnichannel with double the demand

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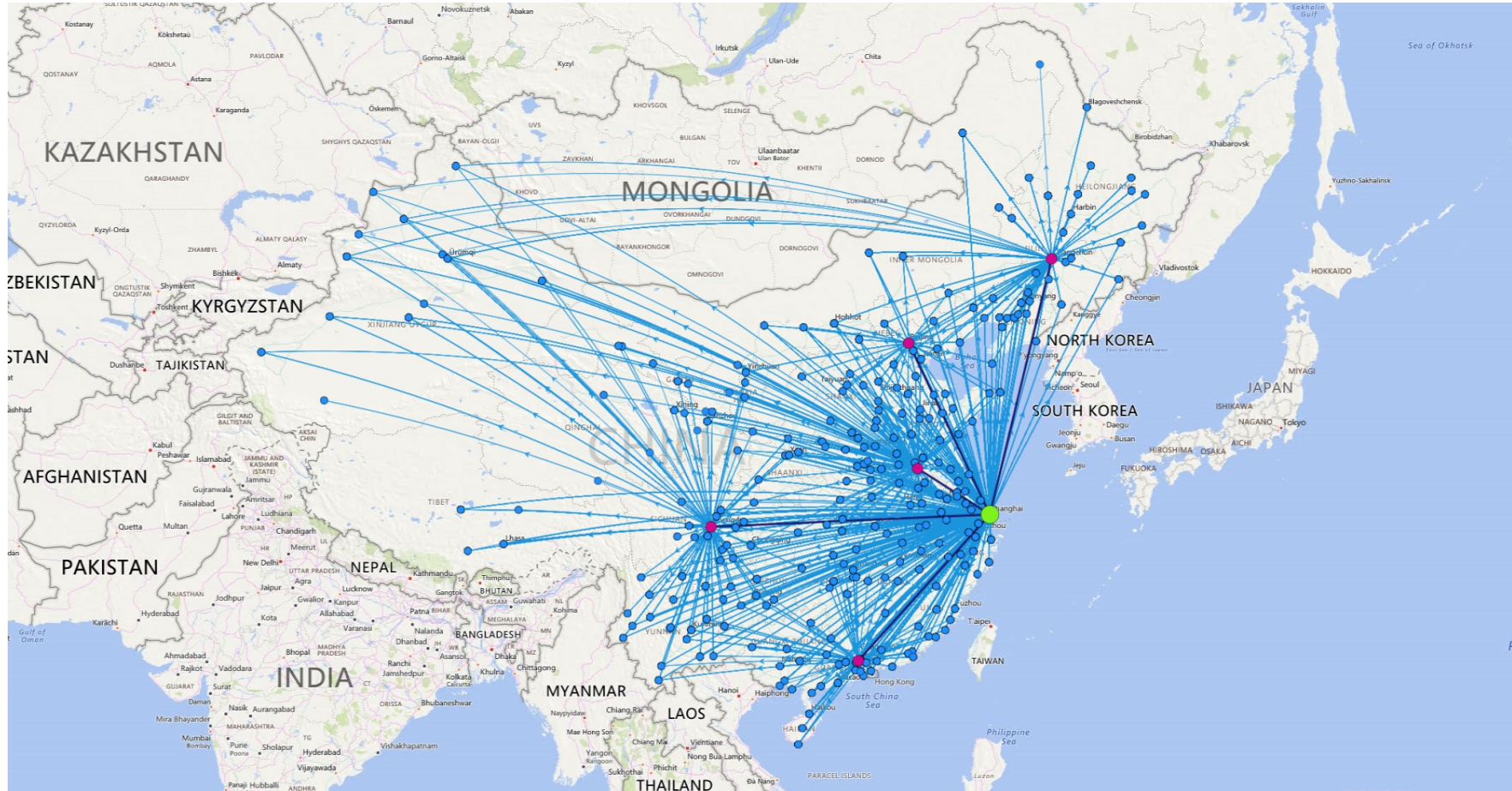
Demand increased to double the 2018 order volume
Transportation cost RMB 8,600,000 at double revenue

Ranked OMS features by significance to Maersk

Feature	Value
Order capture	25
Order cancellation	24
Real time inventory availability	24
Business workflow	24
APIs	23
Multi-Line Orders	23
Returns management and processing	22
Order status work-flow	18
Omni-chanel order visibility	17
Stock Availability in Shopping Cart	16
Order orchestration / intelligent order routing	16
Reverse logistics / returns to DC	15
Multi-vendor support	14
Search by order number	13
Allow Access to History (Orders, Returns, Track Packages, Cancel Items, Modify Open Orders)	13
Display estimated shipping date	12
Order approval in less than 2 seconds	12
Reverse logistics / returns to store	11
Order status lookup (customers and contact centers)	11
Single view of orders and order history across the enterprise	9
Buy online, pick up in-store	8
Single view of all enterprise inventory	6
Ship-from-store	6
Supply chain visibility	4
Search orders by customer account number	4
B2B / Multiple corporate users	4
Omni-channel order lookup	3
Single view of customer and history	1

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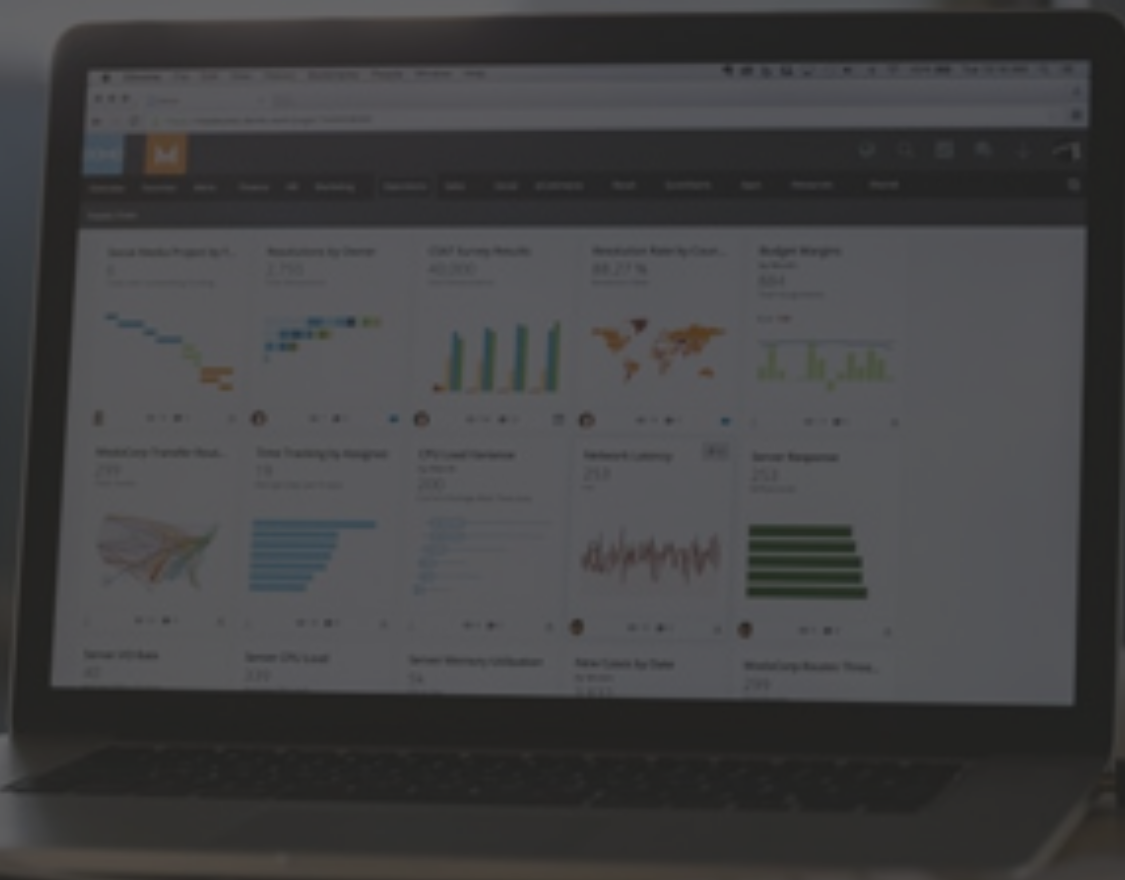# Contributions to Maersk and the industry
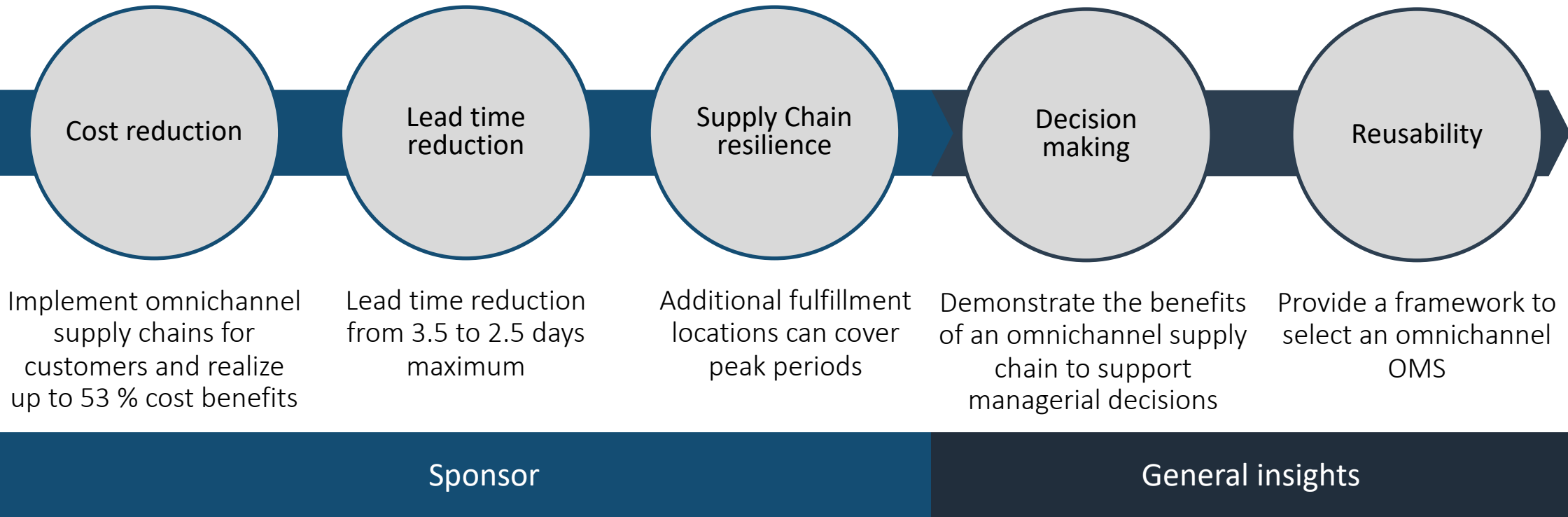
Cost reduction

Lead time reduction

Supply Chain resilience

Decision making

Reusability

Implement omnichannel supply chains for customers and realize up to 53 % cost benefits

Lead time reduction from 3.5 to 2.5 days maximum

Additional fulfillment locations can cover peak periods

Demonstrate the benefits of an omnichannel supply chain to support managerial decisions

Provide a framework to select an omnichannel OMS

Sponsor

General insights

Questions?

Scenario comparison

SCENARIO	DCs	SHOPS	SHOP CAPACITY CONSTRAINED	TOTAL REVENUE (RMB)	TOTAL TRANSPORT COST (RMB)	MARGIN INCREASE
Baseline	1	0	No	93,227,811	7,004,024	Status quo
Scenario 2	1	5	No	93,227,811	1,933,575	6%
Scenario 3	1	5	Yes	93,227,811	3,287,491	4%
Scenario 4	1	5	Yes	186,455,621	8,591,568	106%