Logistics optimization

KPMG Webinar
August 2017
Question and Answer Session

Please submit questions in chat window (bottom right corner of screen) any time.

Don’t forget to hit SEND.

I will compile the questions and submit them to the speakers in the last 20 minutes of the webinar, as time permits.
Today's Speakers

Phuc Nguyen
Director
Customer & Operations

Rohit Sinha
Senior Manager
Trade & Customs
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<th>Table of contents</th>
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<td>Logistics market overview and key trends</td>
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<td>Logistics challenges in Vietnam</td>
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<td>3</td>
<td>Optimization opportunities</td>
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<td>4</td>
<td>Q&amp;A</td>
</tr>
</tbody>
</table>
More than 90% of world’s trade is carried by sea.

Global Seaborne Trade estimated over 10 billion tonnes loaded in FY15.

Volume of world merchandise trade will grow 2.1% – 4.0% from FY17-FY18.

Source: Peter Vanham, Global Leadership Fellow, World Economic Forum; WTO
Global Logistics Trends (video)

https://www.youtube.com/watch?v=dWmtsen9ASM
Logistics Trends Radar

- Social & Business Trends:
  - High: Creates new (potentially disruptive) ways of doing business
  - Low: Provides incremental improvement opportunities

- Technology Trends:
  - Under 5 year trends
  - Above 5 year trends

Source: DHL’s Logistic Trend Radar 2016
Vietnam economy outlook

Vietnam economy is growing at 6.3% In 2016-2017f

3rd most populous country in ASEAN with 92.3m People

Key sectors to drive growth are Manufacturing, Retail and Agriculture

Source: World Bank; Asean up
Vietnam export is growing and continues to grow with new FTAs.

Merchandise export growth in 2016:
- Vietnam: 9%
- Indonesia, Malaysia, Philippines, Singapore, Thailand: 0%

Vietnam signed/developing FTAs:
- ASEAN - China
- ASEAN - India
- ASEAN - Australia / NZ
- ASEAN - Korea
- Vietnam - Chile
- Vietnam - Korea
- Vietnam - Japan
- Vietnam - EU
- Vietnam - Eurasian Economic Union

Source: World Bank; WTO Center
Export - Import continue to see strong growth in 1H 2017

### Vietnam’s Merchandise Exports (y/y change)

<table>
<thead>
<tr>
<th>Merchandise</th>
<th>2015</th>
<th>2016</th>
<th>5m-16</th>
<th>5m-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Export Value</td>
<td>7.9%</td>
<td>9.0%</td>
<td>6.2%</td>
<td>18.4%</td>
</tr>
<tr>
<td>Crude oil</td>
<td>-48.5%</td>
<td>-36.5%</td>
<td>-47.2%</td>
<td>26.2%</td>
</tr>
<tr>
<td>Non-Oil</td>
<td>10.8%</td>
<td>10.1%</td>
<td>7.7%</td>
<td>18.3%</td>
</tr>
<tr>
<td>Agriculture Products</td>
<td>-6.9%</td>
<td>7.7%</td>
<td>7.0%</td>
<td>14.5%</td>
</tr>
<tr>
<td>Rice</td>
<td>-4.5%</td>
<td>-22.4%</td>
<td>0.3%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Fisheries</td>
<td>-16.0%</td>
<td>7.4%</td>
<td>4.4%</td>
<td>13.8%</td>
</tr>
<tr>
<td>Low-value manufacturing</td>
<td>7.6%</td>
<td>8.3%</td>
<td>6.6%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Garment</td>
<td>9.1%</td>
<td>4.6%</td>
<td>6.4%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Footwear</td>
<td>16.3%</td>
<td>8.3%</td>
<td>8.0%</td>
<td>12.0%</td>
</tr>
<tr>
<td>Technology Manufacturing</td>
<td>31.0%</td>
<td>15.3%</td>
<td>12.1%</td>
<td>24.0%</td>
</tr>
<tr>
<td>Phones and parts</td>
<td>27.9%</td>
<td>13.8%</td>
<td>19.1%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Computer &amp; Electronics</td>
<td>36.5%</td>
<td>21.5%</td>
<td>6.0%</td>
<td>46.7%</td>
</tr>
<tr>
<td>Domestic sector</td>
<td>-2.5%</td>
<td>5.4%</td>
<td>3.8%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Foreign Invested sector</td>
<td>13.0%</td>
<td>10.5%</td>
<td>7.2%</td>
<td>20.1%</td>
</tr>
</tbody>
</table>

### Vietnam’s Merchandise Import (y/y change)

<table>
<thead>
<tr>
<th>Merchandise</th>
<th>2015</th>
<th>2016</th>
<th>5m-16</th>
<th>5m-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Import Value</td>
<td>12.0%</td>
<td>5.2%</td>
<td>-1.7%</td>
<td>24.7%</td>
</tr>
<tr>
<td>Petroleum</td>
<td>-26.2%</td>
<td>-11.4%</td>
<td>-22.9%</td>
<td>30.4%</td>
</tr>
<tr>
<td>Machinery &amp; Equipment</td>
<td>23.1%</td>
<td>2.9%</td>
<td>-7.2%</td>
<td>39.2%</td>
</tr>
<tr>
<td>Materials and intermediate goods</td>
<td>11.9%</td>
<td>6.5%</td>
<td>-0.3%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Animal feed</td>
<td>4.2%</td>
<td>2.1%</td>
<td>-17.6%</td>
<td>20.6%</td>
</tr>
<tr>
<td>Fabrics</td>
<td>7.8%</td>
<td>3.2%</td>
<td>2.2%</td>
<td>7.8%</td>
</tr>
<tr>
<td>Metal</td>
<td>4.7%</td>
<td>2.0%</td>
<td>-5.2%</td>
<td>27.0%</td>
</tr>
<tr>
<td>Plastic Material</td>
<td>-5.7%</td>
<td>5.0%</td>
<td>0.1%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Consumer Products</td>
<td>21.3%</td>
<td>7.8%</td>
<td>8.2%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Domestic sector</td>
<td>7.5%</td>
<td>5.2%</td>
<td>-0.1%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Foreign Invested Sector</td>
<td>15.5%</td>
<td>5.2%</td>
<td>-2.8%</td>
<td>28.1%</td>
</tr>
</tbody>
</table>

Source: World Bank: An Update on Vietnam’s Recent Economic Developments; Vietnam Department of Customs.
Foreign Direct Investment (FDI)

FDI continues to grow strong in 2017

FY15: 22.7 billion
FY16: 24.3 billion
1H17: +54.8% vs. same period

Source: Cafef.vn
Outlook for Logistics in Vietnam

Goods transport volume by transport mode

<table>
<thead>
<tr>
<th>Mode</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17f</th>
<th>FY21f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rail</td>
<td>817</td>
<td>874</td>
<td>991</td>
<td>1,151</td>
<td>1,569</td>
</tr>
<tr>
<td>Inland</td>
<td>191</td>
<td>195</td>
<td>218</td>
<td>249</td>
<td>322</td>
</tr>
<tr>
<td>Waterway</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Road</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
<td>0.4</td>
</tr>
</tbody>
</table>

CAGR FY17f – FY21f
- Air: 7.2%
- Rail: 3.6%
- Inland Waterway: 6.6%
- Road: 8.1%

Source: BMI – Freight Transport & Shipping Report Q2 2017
Logistics Sector see strong M&A activities

Mekong Capital invested in
ABA Logistics

Mekong Capital invested in
Nhat Tin Logistics

Samsung SDS Joint Venture with ALS

Taekwang Industrial Co Ltd seeks to acquire Gemadept Corporation

Source: Cafef.vn ; vnexpress.net
Logistics Challenges in Vietnam

- Low truck utilization
- Fraud & Corruption in Logistics (facilitation payments)
- Inefficient planning & Operations
- Poor infrastructure
- Old equipment
- Fragmented transportation industry
- Access to inner cities
- Low adoption of technology
<table>
<thead>
<tr>
<th>Region</th>
<th>Avg Year</th>
<th>Logistics Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>2000-2010</td>
<td>9.2%</td>
</tr>
<tr>
<td>EU</td>
<td>2005-2008</td>
<td>12.0%</td>
</tr>
<tr>
<td>Mex</td>
<td>2008</td>
<td>13.5%</td>
</tr>
<tr>
<td>World</td>
<td>2002</td>
<td>13.8%</td>
</tr>
<tr>
<td>China</td>
<td>2004</td>
<td>21.3%</td>
</tr>
<tr>
<td>Vietnam VN</td>
<td>2014</td>
<td>25.0%</td>
</tr>
</tbody>
</table>

Vietnam’s Logistics cost accounts for 25% of total GDP in 2014.
Aimed at long term strategic improvement
Big investment is required
Decision required from the top

Aimed at medium term improvement
Medium investment required
Decision required from the top

Aimed at short term quick wins with low investment required, can be solved at operational level
Possible areas to optimize logistics

**Strategic**
- Invest in Technology
- Dedicated Fleet
- Outsourcing
- Network Configuration
- Tax efficient footprint

**Tactical**
- Sales & Operations Planning
- Carrier utilization
- Carrier mix
- Mode mix
- Packing mix
- Stability in Sales

**Operational**
- Truck Turnaround time
- Cross docking
- Optimize warehouse operations
- Palletized transport
- Internal Material Handling
- Increase back haul
- Indirect Tax Optimization
- Night deliveries
Deep Dive Areas

Strategic
- Invest in Technology
- Dedicated Fleet
- Unbundling
- Network Configuration
- Tax efficient Footprint

Tactical
- Sales & Operations Planning
- Carrier utilization
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- Mode mix
- Packing mix
- Stability in Sales

Operational
- Truck Turnaround time
- Cross docking
- Optimize warehouse operations
- Palletized transport
- Internal Material Handling
- Increase back haul
- Indirect Tax Optimization
- Night deliveries
Optimization Opportunities
Invest in Technology Across Different Part of the Supply Chain

Each step in the logistics Value chain can be technologically enhanced to increase efficiency and reduce costs.
A logistics network is the **physical configuration of your supply chain**. Assessing your network design is a strategic approach to reducing complexity, cost and inventory, whilst maintaining service level.
Develop a model to simulate your network (Video)

https://youtu.be/e1bzRqs1SuM
Methodology for Logistics Network Simulation

**Phase 0 – Data collection**
- Logistics Mapping
- Identify Product Flow path
- Identify demand clusters
- Service level for flow path
- Calculate logistics costs

**Phase I – Baseline**
- Optimized logistics network with the least network cost.
- Lead times used to derive the view on service levels.
- Logistics costs for different layers of transportation and mode mix

**Phase II – Simulation**
- Define scenarios based on agreed strategic decision

**Phase III – Final scenario**
- Scenario #1
- Scenario #2
- Scenario #n

**Challenges**
- Validation of assumptions
- Cleanliness of data
- Maturity level of logistics

If the difference between baseline and actual costs is significant:
1. Assumptions are re-validated
2. Modelling is re-designed

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Plan
- Multi-objective model
- Greenfield scenario
- New lanes discovered
- Cost analysis
- Mode mix
- Re-routing

Implement
- Re-routing

Cost Savings - Breakup Waterfall

Exhibit: Our Recommendations

Typical Supply Chain Network

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Identify Product Flow path

Develop scenarios

Re-routing
Crossdocking (1/2)

Before Cross-Docking

Suppliers
LTL
Customers

After Cross-Docking

Cross-Docking DC

Distribution Center

Suppliers
Receiving
Sorting
Shipping
Customers
Crossdocking (2/2)
Indirect Tax optimization

**Sourcing**
- Supplier evaluation
- Tax relief

**Shipping**
- Supply route
- Sea vs air
- Incoterm
- Regional hubs

**Import & Distribution**
- Import duties and VAT
- Broker evaluation
- Trade Programs (FTZ)
- Domestic taxes
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