Logistics Impact on Industrial Development – Update 2015

Prepared By:
Curtis D. Spencer, President
IMS Worldwide, Inc.
Today’s Agenda

- All of you already know how Logistics Impacts Industrial Real Estate!
- This is the 2015 Refresher.
- What happened in 2014 to set us up for 2015?
  - Imports and Exports, Unions vs. Management, BIG SHIPS
  - E-Commerce, The Next Cycle
  - Re-shoring and manufacturing in North America – Continuing in Basic Robust, Manufacturing: Steel, Chemicals, Plastics, Autos, others

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Foreign Trade Zone, Logistics and Supply Chain Consulting
Imports and Exports
Global Shipping Trade Routes
2014: West Coast – East Coast Ports

• USWC port shutdown and congestion impacted the entire U.S. port system during 2014 all the way to the first quarter of 2015.
• By the end of May, the throughput of USWC ports will be back to normal.
• USWC ports reported a dismal 10–35% decline in TEU volumes during January and February of 2015 (compared to 2014 volumes). However, March numbers are reflecting the shift back to the USWC ports:
  – Port of LA reported a 17.27% TEU growth in March vs. March 2014
  – Port of LB reported a 32% TEU growth in March vs. March 2014
  – Port of Oakland reported a 8.1% growth in March vs. March 2014
2014: West Coast – East Coast Ports

• Pricing during the 2014-15 Labor unrest increased by over 100% for East Coast All Water Routes:

• But in just 60 days, the pricing has adjusted back to reflect more typical carrier rates:
  – USEC
    • January 2015 – $4,498
    • May 2015 – $2,750
  – USWC
    • January 2015 – $2,058
    • May 2015 – $1,650
This is the NEW Problem

- Dockworkers, Truckers, Terminal Operators, Chassis Pools, Ports, Shippers - All of these are not ready for the Logistics Challenges of the Larger Ships

- BIG SHIPS =
  - Longer unload/load times
  - More containers on the Terminal at once
  - Twice the need for chassis, trucks, rail cars, etc., to move the containers off the docks
  - Nobody had a CLUE how this was going to work, and when added to the labor slow-downs it resulted in chaos on the West Coast!
Large Ships Impact on US Ports 2015-2020

- Bigger Ships mean less vessel – port calls per rotation
- Less vessel calls mean less Ports visited by the Major Carriers
- Ports must have 3 essential components to handle large ships:
  - Water Depth
  - Terminal Equipment Matching Ship
  - Off-Site Rail and Road enhancements.
- EC Winners: NYNJ, Charleston, Miami, Savannah
- EC Losers: Jacksonville
- WC Winners: LA/LB, Canadian Ports, Oakland (exports), Mexican Ports
- WC Losers: Portland
- WC Neutral: Seattle/Tacoma --with new joint agreement!
THE PANAMA CANAL PROBLEM!
Artist’s Rendering–New Panama Canal Design 2011

GAME CHANGER POTENTIAL
Panama Canal Update: April 2015
Key Milestone with Installation of Final Gate

• The Panama Canal Authority (ACP) announced in April a key milestone: The installation of the sixteenth and final gate for the new locks on the Pacific side of the Canal (April 13th).
• ACP reports that “the Expansion is 85% complete”
• The installation process began at 12:00 PM (Panama Time) on the south end of the Canal’s Pacific locks, which connect directly to the ocean.
  – The final gate is one of the heaviest and weighs 4,232 tons, or roughly 8.5 million pounds.
  – It measures 57.6 meters wide by 10 meters long and 33 meters high.
• The installation of all eight gates on the Atlantic side of the Panama Canal was completed earlier this year on April 1.

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New Panama Canal Locks
CURRENT VIEW OF NEW LOCKS – APRIL 2015
From China, it takes about 2 weeks to bring cargo to the west coast and about 4 weeks to bring it in on the east coast. (2000)
From China, it takes about 2 weeks to bring cargo to the west coast and about 4 weeks to bring it in on the east coast. (2000)
E-Commerce: Driving New Industrial!
Projected Online U.S. Retail Sales as a Portion of Total US Retail Sales 2009-2025

<table>
<thead>
<tr>
<th>Year</th>
<th>Total US Retail Store Sales</th>
<th>Total US Online Sales</th>
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<tbody>
<tr>
<td>2009</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>2010</td>
<td>7%</td>
<td>7%</td>
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<tr>
<td>2011</td>
<td>7%</td>
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<td>2012</td>
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<td>8%</td>
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<tr>
<td>2013</td>
<td>8%</td>
<td>10%</td>
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<tr>
<td>2014</td>
<td>12%</td>
<td>14%</td>
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<tr>
<td>2015</td>
<td>16%</td>
<td>18%</td>
</tr>
<tr>
<td>2016</td>
<td>20%</td>
<td>22%</td>
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<tr>
<td>2017</td>
<td>24%</td>
<td>26%</td>
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<tr>
<td>2018</td>
<td>28%</td>
<td>30%</td>
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<tr>
<td>2019</td>
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<td>2020</td>
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<td>2025</td>
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</tbody>
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In Billions of $
E-Commerce Impact on Industrial

• “60 tenants are currently seeking big box warehouses of one million square feet or more nationwide” JLL, January 8, 2015

• The E-Commerce generation of industrial is up to 5 times more labor intensive than traditional retail/distribution: more parking, mezzanine build-outs and increased automation are some of the features difficult to retrofit to older buildings, but many can be converted. (Area Development Magazine, 2013)

• Alibaba-in 2013, their T-mall shopping network reached $240 billion-that is triple the size of eBay and twice the size of Amazon

• Alipay the online payment system handled more than three times the amount of mobile payments processed by PayPal. (WSJ, May 15, 2014)
The historical Amazon model:

- 30 MSF of FC space absorbed since 2011
- Over 23 MSF of new “Aircraft Carrier” build-to-suit facilities, equal to and greater than 1 MSF per box
- Long term leases
- Move to 40’ clear
- Huge capital investment – by all parties
- Max out the cube through innovative technology
- The Amazon Calculus defined (limited) where these could go
- tax, labor, infrastructure, transportation, incentives etc.
- Build a Two Day network to support regional growth
- THIS was what spurred the last 4 years of Growth!
Ben Conwell, former Real Estate Director, Amazon.com

Next Phase for Amazon and the “BIGS”

Mid-sized DC/FCs seeking to locate inside the “ring of faster gratification” or SAME DAY DELIVERY

- For Amazon:
  - 300k – 500k square foot facilities
  - Marginally better inventory picture
  - Better chance of existing product being closer to optimally configured/viable, yet substantial new product will be needed

- Non-Amazon:
  - Increasing reliance on 3PLs and delivery companies to figure out the last mile execution
  - Supporting smaller closer-in FCs with existing/future larger facilities >1 day away

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Ben Conwell, former Real Estate Director, Amazon.com
Medium to large sortation centers within major urban centers to accelerate delivery and mitigate risks

- **Amazon**
  - Biggest operations bet of 2014 – mitigate risks of delivery providers’ potential disruption: avoid 2013
  - 18 SCs online by peak carefully located to optimize impact
  - AN SC IS THE SHIPPING BAY TAKEN OUT OF THE 40 FT BOX AND SEGREGATED
  - 150k to almost 600k square feet
  - Enabled Sunday delivery with USPS, and more
  - Better control their own destiny
  - Volumes through the network year 1 were mind-blowing
  - The Model Worked!

- **Non-Amazon**
  - Further enhancement of 3PLs’ and carriers’ sortation networks
  - Not just investment within the existing footprint: better AND bigger

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What are and where will we see the biggest drivers in e-commerce real estate expansion in 2015 and 2016?

- A: Huge big boxes landing well outside major metropolitan areas, i.e. *(The 2-Day proposition)*
- B: Mid-sized DC/FCs seeking to locate inside the “ring of faster gratification” *(the Next Day proposition)*
- C: Medium to large *sortation centers* (THIS IS THE SHIPPING BAY) within major urban centers to accelerate delivery and mitigate risks? *(the Hire it Out or Vertically Integrate proposition)*
- D: Small depots on every corner where the last mile really begins? *(the near Next Hour or Manhattan proposition)*

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According to studies performed by HSBC Global Research:

- Given growing exports, HSBC expects Mexico to displace China as the top U.S. trading partner by 2018.
- Mexico’s fully loaded manufacturing salaries registered US$2.10 per hour in 2011 up from US$1.72 in 2001, a 19% increase. In contrast, China had an average wage at US$1.63 in 2011 from US$0.35 in 2001. The increase has been almost fourfold.
Foreign Direct Investment (FDI) in Mexico

- Foreign Direct Investments in Mexico in 2011 reached approximately $19.5 billion dollars:
  - **New Investments:** $8 B
  - **Reinvestments:** $7.4 B
  - **Exchange of Investment:** $3.8 B

- From 2007 to 2011, FDI in Mexico has totaled more than $113 billion dollars

- 2011 Investments focus on: Manufacturing, Finance, Retail, Aerospace, Automotive, Appliances & Wind Energy

SOURCE: ProMexico and Secretaria de Economia de Mexico

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By 2015, Mexico’s Auto Production Will Increase by 1 Million Units

Mexico Auto Production
(in millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Export</th>
<th>Domestic</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1.22</td>
<td>0.28</td>
<td>1.50</td>
</tr>
<tr>
<td>2010</td>
<td>1.85</td>
<td>0.41</td>
<td>2.26</td>
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<td>2011</td>
<td>2.04</td>
<td>0.42</td>
<td>2.46</td>
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<tr>
<td>2012</td>
<td>2.20</td>
<td>0.40</td>
<td>2.60</td>
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<tr>
<td>2013</td>
<td>2.35</td>
<td>0.42</td>
<td>2.75</td>
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<tr>
<td>2014</td>
<td>2.60</td>
<td>0.42</td>
<td>3.02</td>
</tr>
<tr>
<td>2015</td>
<td>3.00</td>
<td>0.48</td>
<td>3.48</td>
</tr>
</tbody>
</table>


SOURCE: Wallenius & Wilhelmsen Logistics
GLOBAL DIVERSITY

$35 Billion New Investment
Shale, Resin and Plastics - 2015

• 225 new Plants or expansions in petrochemical processing – 75% in the Gulf Coast
• Cumulative capital investments totaling $138.0 billion in the United States
• By 2020, the cumulative impact will boost real GDP by 2.0% to 3.3%
• Creating from 2.7 million to as high as 3.6 million new jobs
• 62% of this investment is foreign direct investment
• 22 Billion pounds of PP/PE new production coming by 2020

Source: American Chemistry Council

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How Much Resin?

- 22 Billion Lbs/Yr MORE than we produce today of just Poly Ethylene
- 30% will be Exported- **SO- Just for Exports....**
- That is 107,300 more Resin rail cars
- That is 23,800 more SIT storage spaces in Greater Harris County
- That is 400,000 more container loads/year
- Packaged in 40 Million SF more warehouses
IMSW Overview of 300+ National FTZ and Strategic Development Projects 1977-2015
Leaders in FTZ Consulting, E-Commerce, Logistics

FJ Spencer, Founder
International Management Services

Curtis D. Spencer, President
IMS Worldwide, Inc.

Mr. F.J. Spencer was the Founder of IMS Worldwide, Inc. (IMSW), which started in 1967.

Mr. F.J. Spencer earned 3 Petrochemical and Masters Degrees which led to his Patent for the Manufacturing of Plastics Resins. That Patent is still used today in modern Plastics Manufacturing Today.

Mr. Spencer was a featured speaker, and had command of 9 Languages.

Mr. Spencer grew the IMS companies as he created new types of FTZs across the USA and Internationally. He paved the way for the first:
• US Mainland Refineries in FTZs
• Private Land-Owners in FTZs
• Multi-Site FTZs
• First Automated FTZ which became the beta-test site for Customs re-write of their FTZ regulations.

Mr. Curtis D. Spencer is the President of IMS Worldwide, Inc., covering:
• Logistics and intermodal shipping trends, ports, inland ports and rail-served logistics centers,
• The development and utilization of Foreign-Trade Zones

Mr. Spencer is featured as a speaker at more than 55 national conferences and workshops each year, and has been published in The Journal of Commerce, Pacific Shipper, Inbound Logistics and a Keynote Speaker for: IWLA, RILA, JOC (TPM & Inland Ports Logistics), ULI, NAIOP, SIOR, AAEI, NAFTZ, AAAE, IEDC, CSCMP, WERC and ICSC.

IMS Worldwide is the leading consulting firm for developers and real estate trusts who seek his guidance as it relates to property value, port efficiencies and site selection differentiators.

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Thank You!

QUESTIONS?

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Drivers of Global Growth

JEREMY GILES  President, Central Region
What drives demand for logistics real estate?

Logistics real estate has structural and cyclical drivers

- **Structural drivers**, such as the reconfiguration of supply chains, create steady demand as customers upgrade to institutional-grade facilities, even during times of economic weakness.

- **Cyclical drivers**, such as global trade and consumption, create new requirements and a growth-oriented environment.

(Expansion and Demand for Class-A Space)
Macro & Mega Trends Driving Logistics

**Globalization**
Trade to continue growing at a multiple of GDP

**Consumption**
Affluence in emerging markets drives sizable consumer classes, requiring new facilities

**Urbanization**
Customers locating within/adjacent to population centers; higher barriers to entry

**Shifting Retail Formats**
Omni-channel and e-commerce emphasize sophisticated supply chains

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**Trade as a % of economic activity, U.S.**
Source: U.S. Bureau of Economic Analysis, Prologis Research

**Consumption as a % of economic activity, U.S.**
Source: U.S. Bureau of Economic Analysis, Prologis Research

**Growth in urban as a % of total World population**
Source: United Nations

**E-commerce as a % of store-based retail, U.S.**
Source: Goldman Sachs
Intensive Users of Logistics Facilities

- E-commerce customers need more logistics space for a given level of retail sales than comparable brick-and-mortar only retailers

- Space-intensive e-commerce needs include:
  - Higher product variety
  - Greater inventory levels
  - Individual B2C shipping
  - Reverse logistics (returns processing)

- More than 10% new leasing is driven by e-commerce today, up from less than 5% three years ago

- E-commerce is raising the growth rate of the logistics industry

How Much Real Estate Does a $1B Retailer Need?

<table>
<thead>
<tr>
<th>Brick and Mortar Real Estate</th>
<th>E-Commerce Real Estate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footprint: 2.8 MSF</td>
<td>Footprint: 1.0 MSF</td>
</tr>
<tr>
<td>Retail: 2,500,000 SF</td>
<td>Retail: 0 SF</td>
</tr>
<tr>
<td>Logistics: 325,000 SF</td>
<td>Logistics: 1,000,000 SF</td>
</tr>
</tbody>
</table>

E-commerce Share by Region

(% of store-based retail)

Western Europe | CEE | U.S. | Japan | China | Brazil
---|---|---|---|---|---
2005 | 2014E | 2017E

1. Source: Prologis Research, Goldman Sachs
U.S. Logistics Real Estate Fundamentals

Logistics Market Fundamentals, U.S.
(sf, in millions) (vacancy rate, %)

Supply Pipeline vs. Demand by Market
(sf in millions and %\(^{(1)}\))

Source: CBRE (historical), Prologis Research (forecast)

1. The percentages within the axis labels are market-level development pipeline as a proportion of trailing net absorption.
Europe Logistics Real Estate Fundamentals

Logistics Market Fundamentals, Europe
(sf, in millions)
(vacancy rate, %)

Supply Pipeline vs. Demand by Market
(sf, in millions and %)

Source: CBRE, JLL, DTZ, Gerald Eve, Prologis Research.
Note: Based on 48 largest European logistics markets.

Source: CBRE, JLL, DTZ, Gerald Eve, Prologis Research.
1. The percentages within the axis labels are market-level development pipeline as a proportion of trailing net absorption.
## Logistics Real Estate Demand Drivers by Region

<table>
<thead>
<tr>
<th>Region</th>
<th>Demand Drivers</th>
<th>Economy</th>
<th>Supply Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S., Canada</td>
<td>T C R</td>
<td>Mature</td>
<td>Developed</td>
</tr>
<tr>
<td>Japan, Europe</td>
<td>T C R</td>
<td>Mature</td>
<td>Underdeveloped</td>
</tr>
<tr>
<td>China, Brazil, Mexico</td>
<td>T C R</td>
<td>Emerging</td>
<td>Underdeveloped</td>
</tr>
</tbody>
</table>

1. Source: Prologis Research

- **T** Global Trade
- **C** Consumption
- **R** Reconfiguration
Infiltration of Class-A Stock

Forecasted GDP Growth 2014 - 2016

- **UNITED STATES**
  - Total Industrial Stock: 13,000 MSF
  - Class-A: 4,000 MSF (30%)

- **MEXICO**
  - Total Industrial Stock: 550 MSF
  - Class-A: 300 MSF (55%)

- **BRAZIL**
  - Total Industrial Stock: 1,100 MSF
  - Class-A: 100 MSF (10%)

- **JAPAN**
  - Total Industrial Stock: 5,000 MSF
  - Class-A: 160 MSF (3%)

- **EUROPE**
  - Total Industrial Stock: 9,000 MSF
  - Class-A: 230 MSF (15%)

**Total Industrial Stock**
- 9,000 MSF in the United States
- 550 MSF in Mexico
- 1,100 MSF in Brazil
- 5,000 MSF in Japan
- 9,000 MSF in Europe

1. Source: Prologis Research, CBRE-EA, JLL, DTZ, International Monetary Fund, World Economic Outlook
Current 2015 Development Underway

- Kimberly-Clark: 874,000 sq ft, Dallas
- Subaru: 300,000 sq ft, Dallas
- UPS: 614,200 sq ft, Boston
- Georgia-Pacific: 1,427,400 sq ft, Pennsylvania
- Johnson Controls: 88,000 sq ft, Louisville
- Reckitt Benckiser: 1,010,700 sq ft, Atlanta
- Schneider Electric: 126,500 sq ft, El Paso
- ULINE: 306,100 sq ft, Monterrey
- Roadrunner Transportation Systems: 112,000 sq ft, Dallas
- Pernambucanas: 544,100 sq ft, São Paulo