“WHAT THE NEXT DECADE PORTENDS”
Prof. Maria G. Burns
Faculty SCLT & Director, Program of Logistics & Transportation Policy
Construction Management * College of Technology * University of Houston
“WHAT THE NEXT DECADE PORTENDS”

Prof. Maria G. Burns

Faculty SCLT & Director, Program of Logistics & Transportation Policy
Construction Management * College of Technology * University of Houston

Material derived from DHS research, the following books and other referenced sources

Managing Energy Security
An All Hazards Approach to Critical Infrastructure
Maria G. Burns

Port Management and Operations
Maria G. Burns

LOGISTICS AND TRANSPORTATION SECURITY
A Strategic, Tactical, and Operational Guide to Resilience
Maria G. Burns
“WHAT THE NEXT DECADE PORTENDS”

INFRASTRUCTURE OPTIMIZATION

PORT INVESTMENT

ENVIRONMENTAL LAW

STRATEGIC PORT AUTOMATION

BIG DATA ANALYTICS BLOCKCHAIN

NEW BANKING ERA CRYPTOCURRENCIES
OVERVIEW: 2008 → 2019 and beyond

“WHAT THE NEXT DECADE PORTENDS”

2019-2020: A Promising Market that is Not Superficial!

• Fleet oversupply pushes for serious investment decisions

World Fleet by Main Ship Type

<table>
<thead>
<tr>
<th>Year</th>
<th>Tankers</th>
<th>Dry Bulk</th>
<th>General cargo</th>
<th>Containers</th>
<th>Other types</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>49.7</td>
<td>27.2</td>
<td>17</td>
<td>1.6</td>
<td>4.5</td>
</tr>
<tr>
<td>1990</td>
<td>37.4</td>
<td>35.6</td>
<td>15.6</td>
<td>3.9</td>
<td>7.5</td>
</tr>
<tr>
<td>2000</td>
<td>35.4</td>
<td>34.6</td>
<td>12.7</td>
<td>8</td>
<td>9.4</td>
</tr>
<tr>
<td>2010</td>
<td>35.3</td>
<td>35.8</td>
<td>8.5</td>
<td>13.3</td>
<td>7.2</td>
</tr>
<tr>
<td>2017-19</td>
<td>28.7</td>
<td>42.8</td>
<td>4.0</td>
<td>13.2</td>
<td>11.3</td>
</tr>
</tbody>
</table>
GLOBAL SHIPPING MARKET EARNINGS 2015-2019

“WHAT THE NEXT DECADE PORTENDS”
MARKET SENTIMENT ➔ UPTURN (uncertainty, fluctuations)

“WHAT THE NEXT DECADE PORTENDS”

SHIPPING CYCLES ➔ Freight Rate Average:

- Global Geopolitics ➔ Reshuffling the deck!
- Credit & Investment Rating by Financial Houses
- Fleet Oversupply
Global Trade growth:
2018: 3.2%
2019: 3.5%
2020: 3.6%

Trade & Currency conflicts may be resolved in 2019, then surprise bumps in 2020

M. Burns Market Forecasting based on Geopolitical & Trade Shifts

Geopolitical Power shifts create new structures & alliances.
## TOP U.S. SEAPORTS
### Energy Exports Increase (2018)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Houston (POHA), TX</td>
<td>+$6.16 b</td>
<td>+ 27.05% $14.76 b</td>
<td>+ 47.73% $6.44 b</td>
<td>+2.68% $2.57 b</td>
<td>+137.55% $2.05 b</td>
<td>+16.34% $1.73 b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corpus Christi, TX</td>
<td>+$4.69 b</td>
<td>+9.05% $5.4 b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beaumont, TX</td>
<td>+$3.16 b</td>
<td>21.58% $2.54 b</td>
<td>81.2% $1.42 b</td>
<td></td>
<td>+309.61% $2.95 b</td>
<td>-6.19% $303.71 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.Louisiana ports, LA (Gramercy)</td>
<td>+$2.32 b</td>
<td>2.87% $3.26 b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Orleans, LA</td>
<td>+$2.27 b</td>
<td>+47.71% to $5.81 b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lake Charles, LA</td>
<td>+$1.99 b</td>
<td>+25.25% $2.43 b</td>
<td>+236.66% $1.83 b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baton Rouge, LA</td>
<td>$1.78 b</td>
<td>+70.19% $1.95 b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Soybeans 35.27% $1.37 b</td>
<td></td>
</tr>
</tbody>
</table>

https://www.forbes.com/sites/kenroberts/2017/12/12/these-10-u-s-seaports-exports-are-growing-the-most-this-year-and-heres-why/#45c079157680
I. GLOBAL ECONOMY SUPPLY & DEMAND

“WHAT THE NEXT DECADE PORTENDS”

Global Economy ➔ AMERICA, ASIA, MIDDLE EAST, AFRICA

U.S. – The Americas: (Canada, Mexico, Brazil)

China – The Americas: (*2018 Frontloading Imports )
I. GLOBAL ECONOMY
SUPPLY & DEMAND

Global Economy ➔ AMERICA, ASIA, MIDDLE EAST, AFRICA

Eurozone changes

* Saturated market.
* Germany growth, Brexit, France, South etc.
* Containers, Refineries
* Demographic issues

“WHAT THE NEXT DECADE PORTENDS”
I. GLOBAL ECONOMY SUPPLY & DEMAND

“WHAT THE NEXT DECADE PORTENDS”

ASIA

CHINA SHIFTS:
• From West to East
• Outsourcing to SE Asia
• Trade with the Americas
• Brazil = Vale accident Capesizers
  (-10 mil tons cgo = -10 ships)

INDIA & PAKISTAN:

The ELEPHANTS IN THE ROOM
II. GEOPOLITICS
TARIFFS & TRADE AGREEMENTS

“WHAT THE NEXT DECADE PORTENDS”

• **U.S. – China** Tariffs & Trade Agreements
  Crude Oil: China imports from U.S. Products, refined

• **Brazil – China** vs. **Australia – China**

• **Intra-Continental Trade Routes**
Bulk vessel classification based on DWT

- HANDY 10,000 - 49,999
- SUPRAMAX 50,000 - 59,999
- PANAMAX 60,000 - 99,999
- CAPE SIZE 100,000 - 199,999
- VLOC 200,000 - 299,999
- ULOC 300,000 - 399,999
- CHINAMAX/VALEMAX 400,000 DWT PLUS
“WHAT THE NEXT DECADE PORTENDS”

SHIP TYPES & TRADE ROUTES

• **Dry Bulk:** Chinese demand  Bears impact from Tariffs

• **Tankers/Energy Market**  U.S., Middle East, *Venezuela

• **Containers:**  New Routes, New Sizes  Mergers, Bankruptcies
GREENER SHIPPING
Fuel compliance & environmental regulations

“WHAT THE NEXT
DECADE PORTENDS”

- Customer Driven
- Energy Mix

2020 IMO Fuel Sulphur Regs

2023 Carbon Dioxide (CO2) emissions target

2050 target of eliminating emissions by 50%

M. BURNS - NAMEPA WGMA 2019
Figure 11.3.: Measuring The Cost of Cyberattacks and the benefits of proactiveness

HIGH COST
- Compromised Internet Protocol (IP) address (*reactive action)
- Loss of Sensitive Data (Innovations, Patents, Strategic Plans, etc.) (*reactive action)
- Tarnished Reputation leading to Loss of Revenue (*reactive action)

MODERATE COST
- Investment for rebuilding Reputation (Media, PR) (*reactive action)
- Loss of Sensitive Data (Innovations, Patents, Strategic Plans, etc.) (*reactive action)
- Legal Settlement Breach notifications Regulatory Non-compliance (*reactive action)

LOW COST
- Compromised Data leading to loss of Resources e.g. production delays, Hijacked vehicles etc. (*reactive action)
- Forensic investigation (*reactive action)

CYBER SECURITY INVESTMENT (**Proactive action)

* REACTIVE ACTION ➔ Post-attack aims at recovery of compromised target.
** PROACTIVE ACTION ➔ Preventive strategy

Figure 11.4: Annual Revenue vs. Investment in Cyber Security

JUST ONE MORE THING...

“WHAT THE NEXT DECADE PORTENDS”

“Just one more thing....”

Who will bear the Cost?
Thank You.

Prof. Maria G. Burns
Faculty SCLT
& Director, Logistics & Transportation Policy Program (LTPP),
College of Technology
University of Houston
mburns2@uh.edu

Book References:

Managing Energy Security
An All Hazards Approach to Critical Infrastructure
Maria G. Burns

LOGISTICS AND TRANSPORTATION SECURITY
A Strategic, Tactical, and Operational Guide to Resilience
Maria G. Burns

Port Management and Operations
Maria G. Burns