MARINE TERMINAL MANAGEMENT TRAINING PROGRAM
TRENDS IN THE DESIGN AND OPERATION OF CRUISE TERMINALS

September 2015

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How do harbors adapt to a 21st-century business model?

A business that is still evolving.
DESIGN AND OPERATION PROCESS

1.0 Determine the market you serve and the growth
2.0 Establish facility demand
3.0 Determine your design vessel
4.0 Establish economic targets
5.0 Development strategy
6.0 Set performance standards
7.0 Terminal design
8.0 Transport design
9.0 Marine design
10.0 Waterfront integration
11.0 Operational options
POTENTIAL
CRUISE PASSENGER GROWTH

Passengers ('000)

Asia
Europe
North America
TOP 25 WORLDWIDE ATTRACTIONS

36 million
CRUISE INDUSTRY COMPANIES

- CARNIVAL CORP., 44.8%
- RCCL, 24.7%
- NORWEGIAN CRUISE LINE, 8.9%
- MSC, 6.4%
- OTHER BRANDS, 15.2%
SHIP ORDERS AS OF 2014

- Number of ships
- Cabin berths


Graph shows the number of ships and cabin berths from 2003 to 2022.
AVERAGE ORDERS OVER THE 10 YEAR CYCLE
FORECAST METHODOLOGY

• Worldwide forecast
• Market capture of North America
• Market share of US
• Market share to Port
• Market share of terminals
FORECAST WORLD CRUISE GROWTH

- Low
- Medium
- High

Passengers:
- 10,000,000
- 15,000,000
- 20,000,000
- 25,000,000
- 30,000,000
- 35,000,000
- 40,000,000
- 45,000,000
- 50,000,000
- 55,000,000
- 60,000,000
KEYS

• Growth is not unlimited or linear
• Growth occurs in steps as capacity is added
• Lines tend to compete with each other at the same port, therefore causing large and fast increase
• There are glass ceilings at each port
  • Growth will diffuse to many ports as the lines continue to globalize
  • Lines do not compete with themselves
  • Capacity issues
FLORIDA HOMEPORT PASSENGERS


North America Homeport Terminal Demand

• If we add 100 more ships in the next 15 years
• Assume 50% to other markets
• These 50 ships will require = 75 homeport berths/week
• If 40% are seasonally deployed that translates into 105 berths/week
• There is a need of 20 to 25 terminals
Facility demand
MAJOR FACTORS

• Natural potential for development
• Timing of cruise line expansion and strategy
• Interline competition
• Seasonality (by month)
• Daily fluctuations
SEASONALITY

SEASONAL

YEAR ROUND

SEASONAL
Warm weather seasonality (Los Angeles)
COLD WEATHER SEASONALITY (Alaska)

The graph illustrates the seasonal variation in cold weather conditions in Alaska. The x-axis represents the months of the year, from January 1 to December 31. The y-axis indicates the severity of cold weather, measured on a scale from 0 to 4.5. The graph shows two distinct periods labeled "Low season". The data suggests a peak in cold weather severity during the winter months, with a gradual decrease towards the spring, followed by another peak in the late summer or early fall, before another decline into the winter.
YEARLY SEASONALITY (SF 2009)

- \textbf{Low season}
- \textbf{Transit to Alaska}
- \textbf{Transit from Alaska}

Graph showing seasonal trends and transitions.
Daily Seasonality
Metric - Berth Use (Passengers per Year)

Design target

Passengers per Berth:
- Oasis
- Vancouver
- Seattle
- San Diego
- Miami
- Port Everglades
- Tampa
- Los Angeles
- Boston
- New York
EXISTING GROWTH DEVELOPMENT MODEL

• Ports wait for the cruise line to call
• Then you have at best 24 months to deliver a facility

• But…….

• Terminals are now much more complicated, expensive and difficult to execute

• Planning is essential
AVERAGE PASSENGERS PER SHIP BY YEAR OF CONSTRUCTION
AVERAGE SHIP LENGTH BY YEAR OF CONSTRUCTION

Average Length (feet)

Year of Construction

1980
1985
1990
1995
2000
2005
2010
2015
PERCENT OF SHIPS OVER 1,000 FEET LOA
IMPACT OF LONGER SHIPS
WHERE IS THE SHIP BUILDING GOING?

- Reacting to the market
- Reacting to the economics of markets
- Driven by a handful of companies

- Reacting to the unknown
Past ship drivers – Physical

- The width of the Panama Canal
- The air-draft of the Verrazano Narrows and Golden Gate bridges
- The draft of smaller harbors (for non-transatlantic)
FUTURE DRIVERS – MARKET AND ECONOMIES

• More passenger amenities
• Better sales yields
  • Outside cabins – larger perimeter
  • Balconies
  • Grander atriums
• Logistics
  • Distribution of passengers
  • Boarding and disembarking
• Better economics
  • Crew to passenger ratios
  • Power / fuel consumption
## Design Vessels

<table>
<thead>
<tr>
<th>Type</th>
<th>Design Vessel 1980s (Panamax)</th>
<th>Design Vessel 2000 (post-Panamax)</th>
<th>Design Vessel 2020 (x-Panamax)</th>
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</thead>
<tbody>
<tr>
<td>Passengers</td>
<td>2,000 to 2,600</td>
<td>3,000 to 5,000</td>
<td>&gt;5,000</td>
</tr>
<tr>
<td>Crew</td>
<td>850</td>
<td>&lt;1,200</td>
<td>&gt;1,500</td>
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<tr>
<td>GRT</td>
<td>Up to 100,000</td>
<td>100,000 to 140,000</td>
<td>&gt;150,000</td>
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<tr>
<td>LOA (ft)</td>
<td>900 to 985</td>
<td>985 to 1,100</td>
<td>1,150 to 1,300</td>
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<tr>
<td>Beam (ft)</td>
<td>Up to 118</td>
<td>Over 118 (gen. 130 to 165)</td>
<td>150 to 200+</td>
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<tr>
<td>Draft (ft)</td>
<td>Up to 28</td>
<td>28 to 36</td>
<td>28 to 32</td>
</tr>
<tr>
<td>Air Draft (ft)</td>
<td>Less than 195</td>
<td>Up to 210</td>
<td>210+</td>
</tr>
</tbody>
</table>

Provide flexibility to absorb changes for each cruise line brand.
Economics
PORT COSTS

- Stevedoring
- Port tariffs
- Security

PORT COSTS
REVENUE DISTRIBUTION

POTENTIAL REVENUES

- Security
- Stevedoring
- Port tariffs
ESTABLISHING BUDGETS

• Understand revenue and cost structure
• Lines drive tariffs competitively
• It is not – “whatever it costs” – the lines will pay
• Different solutions and issues
  • Start-ups with low volumes
  • Legacy ports with obsolete infrastructure
• Perform an affordability test at the start
NORTH AMERICAN PORT REVENUES (US$/PAX)

<table>
<thead>
<tr>
<th>Port</th>
<th>Revenue</th>
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<tbody>
<tr>
<td>P1</td>
<td>$0.00</td>
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<tr>
<td>P2</td>
<td>$5.00</td>
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<tr>
<td>P3</td>
<td>$10.00</td>
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<tr>
<td>P4</td>
<td>$15.00</td>
</tr>
<tr>
<td>A1</td>
<td>$20.00</td>
</tr>
<tr>
<td>A2</td>
<td>$25.00</td>
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<tr>
<td>A3</td>
<td>$30.00</td>
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<tr>
<td>A4</td>
<td>$35.00</td>
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<td>A5</td>
<td>$40.00</td>
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<tr>
<td>A6</td>
<td>$45.00</td>
</tr>
<tr>
<td>A7</td>
<td>$50.00</td>
</tr>
<tr>
<td>A8</td>
<td>$55.00</td>
</tr>
<tr>
<td>A9</td>
<td>$60.00</td>
</tr>
<tr>
<td>A10</td>
<td>$65.00</td>
</tr>
</tbody>
</table>
OPERATIONAL COST OF DIFFERENT TERMINALS (us$)
AVERAGES

• Revenues
  • On average the total per passenger charge in the US is $14.52
  • This varies widely by region
    • West coast is lowest at $9.01
    • North Atlantic is highest at +$19.00
    • Legacy ports average at $15.51

• Costs
  • Operating costs of a terminal varies highly between $3.00 per passenger to over $12.00 per passenger
  • Ports with average operations can operate with a 50:50 ratio of costs to revenues
  • Very sensitive to volumes and historic labor arrangements

• Net revenues
  • This combination of revenue and costs create a wide disparity between ports as to their financial performance
RATE VS VOLUME - CARIBBEAN
METRIC – PORT GROSS REVENUES PER BERTH (US$)
Development Strategies
COMPETITION OR COOPERATION?

- Ports should offer complimentary experiences
- Variety
  - Active
  - Passive
  - Cultural
  - Eco-tourism
  - Shopping
- Multi-national
- Marquee value

Port of call

Port of call

Port of call

Port of call

homeport
ITINERARIES - BACKBONE OF THE INDUSTRY

• Lines are focused on cruise itineraries
  • easy
  • profitable
  • sell to cruise consumers

• Manageable distances to reduce speeds and fuel consumption

• Creation of cruise itineraries that fit within consumer vacation patterns
  • mini-breaks
  • week long cruises
Disney’s Castaway Cay
Grand Turk Cruise Center
Mahogany Bay, Roatan - Carnival
HOMEPORTS

- Delivers terminal and harbor
- Services vessels
- Handles baggage
- Handles passenger transfers
- Linked to a major airport with significant air carrier capacity
- Although in the US the drive market is now critical to passenger delivery
- Central to fuel efficient itinerary pattern(s)
THE EVOLUTION OF THE CRUISE TERMINAL
CRUISE TERMINAL AREA COMPARISON (mt²)

- ARRIVE
- DEPART
- OTHER
# Terminal Program

<table>
<thead>
<tr>
<th></th>
<th>Canaveral CT6</th>
<th>Canaveral CT1</th>
<th>PEV 18</th>
<th>Miami D</th>
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<tbody>
<tr>
<td><strong>Embarkation</strong></td>
<td></td>
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<tr>
<td>Check-in</td>
<td>7,127</td>
<td>18,000</td>
<td>36,125</td>
<td>16,984</td>
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<tr>
<td>Lounge / VIP</td>
<td>11,582</td>
<td>33,500</td>
<td>51,639</td>
<td>19,770</td>
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<td>Support</td>
<td>28,295</td>
<td>19,000</td>
<td>43,313</td>
<td>11,637</td>
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<tr>
<td>Security</td>
<td>7,889</td>
<td>15,600</td>
<td>9,708</td>
<td>6,664</td>
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<tr>
<td><strong>Subtotal embarkation</strong></td>
<td>54,893</td>
<td>86,100</td>
<td>140,785</td>
<td>55,055</td>
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<tr>
<td><strong>Disembarkation</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Baggage</td>
<td>34,377</td>
<td>60,000</td>
<td>63,625</td>
<td>34,871</td>
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<tr>
<td>Customs / Immigrations</td>
<td>12,914</td>
<td>15,124</td>
<td>10,705</td>
<td>13,281</td>
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<tr>
<td>Support</td>
<td>5,378</td>
<td>28,200</td>
<td>32,620</td>
<td>8,365</td>
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<tr>
<td><strong>Subtotal disembarkation</strong></td>
<td>52,669</td>
<td>103,324</td>
<td>106,950</td>
<td>56,517</td>
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<tr>
<td><strong>Grand total</strong></td>
<td><strong>107,562</strong></td>
<td><strong>&gt;200,000</strong></td>
<td><strong>247,735</strong></td>
<td><strong>111,572</strong></td>
</tr>
</tbody>
</table>
REALITIES TODAY

- All ports started with low cost solutions
- Using existing abandoned berths and warehouses
- Low investments

- Those easy solutions are all exhausted
- Few if any berths are available

- Ports are building new
Both scenarios offer challenges

• **Start-up ports**
  • Lack of certainty
  • High start-up costs
  • Low volumes
  • Slow ramp up to profitability

• **Legacy ports**
  • Fixing an old terminal could be as expensive as a new one
  • Incremental increases
  • Rare that legacy ports have huge jumps in traffic
  • Usually large incremental costs
HOMEPORT PASSENGER MOVEMENTS - TODAY

DISS EMBARKATION

EMBARKATION

0 200 400 600 800 1,000 1,200 1,400 1,600 1,800 2,000

8:00 8:45 9:30 10:15 11:00 11:45 12:30 13:15 14:00 14:45 15:30 16:15 17:00

DISEMBARKING

ARRIVING

EMBARKING

AAPA

ba
TRADITIONAL TERMINAL CONCEPT
ALTERNATIVE (TWIN TERMINALS)
INTEGRATED TERMINAL AT WATERSIDE
REMOTE PARKING

APRON

TERMINAL

GTA

PARKING
REMOTE TERMINAL

APRON

BOARDING

TERMINAL

GTA

PARKING
Performance Standards
CRITICAL DESIGN ISSUES

1. Segregate embarkation from disembarkation
2. Segregate modes of transportation
3. Provide the latest security – with flexibility
4. Improve functionality
5. Luggage handling technology
6. Integrate terminal into waterfront
7. Secondary uses
PASSENGER EXPERIENCE
Facilities without operational targets...

• **Will not work anymore**
  • Ships are too big
  • Too many passengers

• There is no such thing as a small ship or large ship port
  • The complexity of the fleet
  • The introduction of multiple class vessels
  • The mobility of the fleet

• All ports must be flexible to support universal designs
NEWEST TERMINALS IN THE NEWEST MARKETS

Singapore

Hong Kong
PERFORMANCE STANDARDS

- Passenger experience
  - Time
  - Flow
  - Queues
  - Spaciousness
  - Direction
  - Friendliness
- Cruise company
  - Cost
  - Efficiency
  - Labor
  - Turn around time
  - Passenger experience
- Destination
  - Revenues and costs
  - Volumes
PERFORMANCE STANDARD

• Establish levels of terminal performance to match frequency or likelihood of demand

• Size the terminal with the Base Design Load (BDL)
  - Time to clear the ship

• Provide processing capacity for Peak Design Load (PDL)
  - Flow and capacity

• Concentrate on throughput improvements to reduce space needs
BALANCE OF CAPACITIES

Ship
Gangway
Immigration
Vertical circulation
Luggage
Inspection
Ground transportation
Parking

Ship
Gangway
Ship security
Check-in
Vertical circulation
Security
Ground transportation
Parking
Transportation
CHALLENGES

- Marine - although a challenge it is not the major issue
- Land based activities need the focus and attention
TRAFFIC IMPACTS

• The main impact is to curbside operations
• The ideal Homeport has curbside capable of:
  • 10 to 16 bus operations simultaneously
  • Separate taxi operations with 30 to 50 meters active curb
  • Separate private vehicle drop-off/pick-up 30 to 50 meters
• Marshalling Area
• Parking highly variable by:
  • Cruise Line
  • Length of Cruise
  • Market
  • Cumulative impact
  • Maturity of market
  • Drive-sail vs. fly-sail composition
Parking vs. Length of Cruise

- 7 Days: 14%
- 10 Days: 12%
- 14 Days: 10%
Parking vs. Cruise Line

<table>
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<tr>
<th></th>
<th>RCI</th>
<th>CELE</th>
<th>HAL</th>
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<tbody>
<tr>
<td>0%</td>
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<tr>
<td>2%</td>
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<td></td>
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<tr>
<td>4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10%</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>12%</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>14%</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Manhattan Pier 88 (50’ – 15 meters)
SAN DIEGO (35’ – 11 METERS)
SEATTLE PIER 66 (60’ – 18 METERS)
GANGWAY SYSTEMS
Gangways

• Most terminals have one gangway
• Some lines insist on two gangways
• Some ships must have two gangways
• The Oasis class requests three gangways
Gangway Design Guidelines

• Horizontal Movement
  • Define by the different berthing scenarios

• Vertical Movement
  • Provide for ship sections +
  • Tide

• Stowage

• Cost
DOOR LEVEL ANALYSIS
GANGWAY

- Adjustable Gangway System
- Fixed Embarkation Walkway
- EL. +22'-0" (Terminal Level)
- EL. 43'-0"
- EL. 21'-0" (Lowest Tide for Other Ships)
- EL. +22'-0" (Top of Deck)
- EL. +17'-6" (Highest Tide)
- EL. +5'-0" (Highest Sill at Highest Tide for Fantasy Ship and Other Ships)
- EL. 17'-8"
- EL. 6'-8" Fantasy Door at Low Tide
- EL. 0'-0" (Lowest Tide)
- Corridor Behind Working Apron
- 25'-0" Width
- 34'-6" Width
- 17'-8" Width
- Fantasy Door
- Other Ships Door
IMPACT OF NEW LARGE SHIPS ON GANGWAYS

- Stand off distances are much larger
- Gangways need to be set back more
SHORE POWER

• Several ports are operable
• Reasons for ports or cities
  • Air quality emissions
  • Neighborhoods
• Reasons for the cruise lines
  • Cheaper power
• Challenges
  • Availability of cheap power
  • Cost of installation
    • Cheapest US$1.6 million for Seattle
    • Others +/- US$5.0 million
JUNEAU – FIRST INSTALLATION - 2001

7 to 11 MW @ 6.6 or 11 KV and .83 to .86 PF
SEATTLE TRANSFORMER, MAIN AND SECONDARY METERING

Transformer Capacity: 32.50 Megawatts
Seattle Primary Voltage is 27 kv
ON SHORE POWER TRENCH AND CABLING
Seattle Cabling System – Power Cable Winch

• Seattle and Juneau single berth systems.

• Los Angeles mobile cabling units.

• Typically connection available on one side of vessel only.
**Onboard Power Hook Up**

- 3 Power Connectors.
- 1 Supervisory Control And Data Acquisition Connector.
- 1 Neutral Connector.
- Standardization of Cable Connections.
Gangway / Shore Power Coordination
Financials
FINANCING IMPROVEMENTS

• For ports, usually the most difficult hurdle to overcome
• The industry is full of misperceptions
• In many cases ports relate to use financing models that work for cargo or other development – not the same
  • Allocation of costs
  • Allocation of risks
• Most ports have limited financial resources
• Many Caribbean and Latin American ports do not have total control of excess revenues
Both scenarios offer challenges

• Start-up ports
  • Lack of certainty
  • High start-up costs
  • Low volumes
  • Slow ramp up to profitability

• Legacy ports
  • Incremental increases
  • Rare that legacy ports have huge jumps in traffic
  • Usually large incremental costs
  • Fixing an old terminal could be as expensive as a new one
FINANCING REALITIES

• Lines do not want tariff increases
• Lines have supported increases in strategic locations
• Lines have relocated due to cost differential
• Ports have used costs as a differentiator
• Ports in North America have not used visitor industry funds to support investments
  • Asia ports are funded through Tourism
INVESTMENTS

• Does it make sense?
  • Revenues support operations and return
• How do you mitigate risk of the investment?
• How do you stay competitive?
• How do cruise lines participate?
  • Direct investment
  • Underlying guarantees?
BACK OF THE ENVELOPE ANALYSIS

- $50 \text{ m per terminal a port needs to net about } $5.0 \text{ m per year}
- To net about $5.0 \text{ m per year the port needs to gross about } $10.0 \text{ m per year}
- With 500,000 passengers / berth, the port needs to collect about $20 per passenger
SOURCING THE FUNDS

• Who has access to capital?
• Who can source the capital with the best terms?
  • Port
  • Cruise line
  • Operator
  • Private investor

• Who will take the risk?
  • Cruise line guarantees
  • Sovereign guarantees
  • Public Bonds guarantees
E V O L U T I O N  O F  C R U I S E  L I N E  I N V O L V E M E N T

NO AGREEMENTS

VOLUME GUARANTEES

DIRECT INVESTMENT

VOLUME AND RATE GUARANTEES
AGREEMENTS (PBA’s) – PORT PERSPECTIVE

- Used to support “investment” decisions
- Used to mitigate risk or assist with financing
- Used to obtain other funding
- Ties up the flexibility of the port
- Might result in discounting
AGREEMENTS – LINES PERSPECTIVE

- Guarantee preferential berths
- Control or reduce tariffs
- Obtain a competitive edge
NET ANNUAL REVENUES FROM CRUISE OPERATIONS (WITH INVESTMENT)
30 YEAR EBITAD – SENSITIVITY TO VOLUMES AND TARIFFS

Current  rate 1  rate 2  rate 3  rate 4

Millions

£0  £20  £40  £60  £80  £100  £120

Low  Target  High

Bar chart showing sensitivity to rates 1 to 4 with current and target values.
## IRR – Risk Assessment (This is for Reference Only)

<table>
<thead>
<tr>
<th>Tariffs</th>
<th>Traffic</th>
<th>Levels of anticipated traffic</th>
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<tr>
<td></td>
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<td>Low</td>
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<tr>
<td>Current</td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>Rate 1</td>
<td></td>
<td>-6.6%</td>
</tr>
<tr>
<td>Rate 2</td>
<td></td>
<td>1.1%</td>
</tr>
<tr>
<td>Rate 3</td>
<td></td>
<td>3.8%</td>
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<tr>
<td>Rate 4</td>
<td></td>
<td>6.1%</td>
</tr>
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</table>
Operations
NORTH AMERICAN OPERATION MODELS

- Operated by the Port Authority
  - Miami
  - Port Everglades
  - San Diego
  - Canaveral
  - Tampa
  - Boston
  - New Orleans

- Concession to a terminal operator
  - San Francisco
  - Seattle
  - Los Angeles
  - Vancouver
  - New York
Terminal Operations

- The operator is the building manager:
  - Maintenance
  - Perimeter security
  - Traffic control
  - Marketing
  - Scheduling
  - Housekeeping (Janitorial)
  - Sometimes:
    - Gangways
    - Ship spotting

- The actual ship operations are done by the:
  - Cruise lines
  - Stevedores
  - Ground handling
1 - Port Authority Operated Terminal

- **OWNER**
  - Port Authority

- **CRUISE LINE**
  - Passengers

- **OPERATOR**
  - Port Authority

- **STEVEDORE**
  - Independent company

- **GROUND HANDLING**
  - Independent company
2 - Stand-alone Third Party Terminal Operator

OWNER
- Port Authority

CRUISE LINE
- Passengers

STEVEDORE
- Independent company

GROUND HANDLING
- Independent company

OPERATOR
- TO Company
3 - Combined Terminal Operator + Stevedoring

- **Owner**
  - Port Authority

- **Cruise Line**
  - Passengers

- **Operator**
  - TO Company

- **Stevedore**
  - TO Company

- **Ground Handling**
  - Independent company
4 - Total Integrated Model

OWNER
- Port Authority

CRUISE LINE
- Passengers

STEVEDORE
- TO Company

OPERATOR
- TO Company

GROUND HANDLING
- TO Company
5 - Outourced Model

**Owner**
- Port Authority

**Cruise Line**
- Passengers

**Operator**
- Port Authority
  - Housekeeping company
  - Security Company
  - Parking company
  - Maintenance company

**Stevedore**
- Independent company

**Ground Handling**
- Independent company
MODELS

- Fiscal agent
- Marketing
- Operations
- Stevedoring
- Passenger services
- Agent
- Security
SECONDARY USES
SECONDARY USES

- Between Cruises
- Nighttime
- Combination Uses
GROUND FLOOR EXHIBITION / TRADE SHOW SPACE

- Indoor Open Space
- 6 meter clear Height
MULTI-USE TERMINAL DESIGN

• Break out space
• 5 to 6 meter clear height
THE LIFE CYCLE OF THE URBAN/PORT WATERFRONT
In Europe all waterfronts have gone through the entire life cycle.

In the new world, most ports have evolved differently skipping the formation period.
Cruise ships enter the mix

- Bringing an urban use to a older waterfront
- The perfect blend between people and shipping

But ------ cruise ships are also bringing certain issues that need to be planned
  - Congestion
  - Security
  - Access
Ships are growing faster than waterfronts can be transformed
Accessible and continuous
Waterfronts need to be: Connected to the City
Waterfronts need to be:

**Made up of distinct elements**
Unifying distinct and different districts
Case study - Tampa Bay
PROPERTY POSITIONING

• Then…
  • Channelside properties were acquired with the underlying purpose to serve the cruise industry
  • Elements were added to create a tourism destination

• Now
  • The site is limited for the cruise industry
  • Surrounding land uses are residential
Existing cruise terminals

<table>
<thead>
<tr>
<th>CRUISE TERMINAL</th>
<th>6</th>
<th>3</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITE AREA</td>
<td>314950</td>
<td>276502</td>
<td>161682</td>
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<tr>
<td>TERMINAL (FOOTPRINT)</td>
<td>42490</td>
<td>88208</td>
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<td>GTA</td>
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<td>PARKING</td>
<td>99317</td>
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<tr>
<td>APRON</td>
<td>60470</td>
<td>48166</td>
<td>71967</td>
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</tbody>
</table>
Option C3

- **T2** is the most constrained terminal
- **T3** and **T6** have the most space for large ships
Alternative A - Individual terminals
Alternative B - New central terminal
Alternative C - Joint terminal
Alternative C compact
Channelside waterfront
Cruise district
Cruise district

- Expanded terminal
  - Multi purpose
- Expanded parking
- Residential tower
- Hotel / commercial
- Mercado
Cruise district

- Expanded parking
- Hotel / commercial
- Mercado
- Residential tower
- Expanded terminal
  - Multi purpose
A multi purpose cruise and conference center
Park district
Channelside maritime park
Channelside Park
Channelside Park
An urban/working waterfront
Multipurpose waterfront
Central waterfront
Central waterfront

- Hotel / Commercial
- Office / residential
Central waterfront

- Office / residential
- Hotel / Commercial
Marina district
Marina district

- Retail / residential
- Harbor Plaza
- Channelside harbor
- Marina / boatyard
- Retail
Marina district
Marina district

- Retail / residential
- Plaza
- Channelside harbor
- Retail
- Marina / boatyard
Channelside waterfront
CONCLUSIONS

• Think strategically
  • Community issues
  • Port’s mission
  • Short – term solutions without a strategic plan will be short lived and more expensive

• Think financially
  • How to finance the project
  • Stay competitive with the industry
  • Not considering pricing in design will create problems

• Think functionally
  • Listen to your users and stakeholders

• Think globally
  • Don’t just compare your port against your neighbor – this is a global business

• Focus on all parts of the business
  • Operations
  • Third party costs to the lines
MARINE TERMINAL MANAGEMENT TRAINING PROGRAM

TRENDS IN THE DESIGN AND OPERATION OF CRUISE TERMINALS

September 2015

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Bermello, Ajamil & Partners