Objectives today

Drivers of port competitiveness

Elements of the Port of Virginia decision

Institutional structures in ports

Port of Virginia

Analytical framework
Objectives today

To support the Governor of the Commonwealth of Virginia and his advisory team as they consider how to respond to APMT’s unsolicited conceptual proposal and other proposals for operation of terminals in the Port of Virginia by:

1. Describing the principal drivers of port competitiveness
2. Giving our views on the elements of the decision to be made for the Port of Virginia
3. Sharing our knowledge of institutional structures in the global ports industry;
4. Proposing a structure for the analysis of options
Agenda

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Nature of competition in container port market

The factors below combine to create the capacity to move cargo reliably and quickly at the optimum through-transport cost

- **Location**
  - proximity to sea lanes, centres of cargo generation

- **Marine access**
  - draught; channel availability; capacity; cost

- **Hinterland links**
  - roads; rail; inland waterways, transit times; costs; reliability

- **Capacity**
  - berth; handling; gate and inland transport

- **Handling costs**
  - Terminal handling; dwell times and storage costs;

- **Terminal efficiency**
  - productivity; reliability of operation; operating hours

- **Value added services**
  - Port centric logistics
## Agenda

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- Elements of the Port of Virginia decision
- Institutional structures in ports
- Port of Virginia
- Analytical framework
Elements of the Decision

Not a linear process, includes macro and micro level analysis

- Port institutional structure
- Future container terminal capacity requirement
- Economic and fiscal policy of the Commonwealth
- Regulatory elements
- Industrial relations
- Financial investments requirement
- Which terminals to operate
- Monopoly or intra-port competition
- Terminal operator selection
Agenda

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Key questions for institutional structure models

Questions of ownership, operation, control and oversight need to be addressed

Who owns the land on which cargo handling terminals stand?

Who invests in and maintains the infrastructure of these terminals?

Who invests in and maintains the cargo handling equipment and other superstructure?

Who carries out cargo handling operations?

If the private sector is involved in any of the above, what regulatory controls are in place and who enforces them?
Common industry structures

Three main port institutional structures worldwide:

<table>
<thead>
<tr>
<th>Structure</th>
<th>Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational Port Authority (OPA)</td>
<td>Port authority (or state) carries out all investment and operates cargo handling terminals (directly or indirectly).</td>
<td>Was a common model once, but now rare. UK ports are rare privatised examples.</td>
</tr>
<tr>
<td>Tool Port Authority (TPA)</td>
<td>Port authority provides all infrastructure and equipment, but rents equipment to private stevedores.</td>
<td>Rarely seen today, east coast USA the main remaining example.</td>
</tr>
<tr>
<td>Landlord Port Authority (LPA)</td>
<td>Port authority provides infrastructure but private terminal operators lease and operate terminals over the long term, and invest in equipment.</td>
<td>The most common and favoured structure around the world.</td>
</tr>
</tbody>
</table>
### Split of terminal responsibilities - differing institutional structures

The standard structures reflect different balances of public and private sector involvement.

#### Port authority type:

<table>
<thead>
<tr>
<th>Port Authority Type</th>
<th>OPA</th>
<th>TPA</th>
<th>TPA</th>
<th>LPA</th>
<th>OPA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institutional Structure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% public/state owned and operated terminal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common user berth</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stevedoring 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stevedoring 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landlord terminal lease / concession</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% privately owned and operated terminal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Asset ownership and maintenance

- **Land and infrastructure** (quay walls etc)
- **Container handling equipment**

#### Operations

- **Yard and gate**
- **Ship and quayside**

- "Land and infrastructure" only refers to terminal land and infrastructure (i.e. does not include port approach channel, port access roads etc)

- *Note: Certain large terminal operators e.g. DP World, PSA, Shanghai International Ports Group are ultimately state owned but operate more like private companies*
Landlord port authority (LPA): key roles

The landlord port authority has three principal functions:

**Landlord**
- Build and maintain terminal infrastructure
- Manage wider port estate
- Manage waterways/channels

**Facilitator**
- Co-ordination
- Planning and development
- Marketing
- Media
- Stakeholder relations

**Regulator**
- Overseeing
- Ensuring fairness
- Dispute resolution
- Mediator
- Safety and Environment
Landlord port authorities exert regulatory control

Well constructed terminal concession/lease agreements contain controls and safeguards

The landlord port authority has the power to ensure that the terminal operator is:

- Treating all customers fairly (i.e. no discrimination)
- Performing at a high operational standard
- Not charging excessive prices
- Not abusing market power

If the terminal operator breaches any of the above, there is a requirement to put it right and there can be financial penalties. Ultimately the port authority has the right to terminate the agreement

- Well constructed terminal concession/lease agreements also incentivise the terminal operator to maximise throughput and operate as efficiently as possible…..
- …….. whilst at the same time the port authority receives predictable revenue streams to meet its fixed costs
Key differences between the landlord port authority (LPA) and the terminal operator

Two sets of aims are kept institutionally separate in LPA ports. But they are not mutually exclusive – they can and do co-exist to the benefit of all port stakeholders:

<table>
<thead>
<tr>
<th>Port authority aims and mission: “DUTY”</th>
<th>Terminal operator aims and mission: “PROFIT”</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be the long term guardian of the port’s interests</td>
<td>To maximise long term profits</td>
</tr>
<tr>
<td>To facilitate growth</td>
<td>To ensure long term durability</td>
</tr>
<tr>
<td>To be fair, transparent, non-discriminatory and neutral</td>
<td>To operate efficiently and give good service</td>
</tr>
<tr>
<td>To not cross-subsidise</td>
<td></td>
</tr>
<tr>
<td>To generate enough revenue to ensure long term sustainability, but not to be a profit maximiser</td>
<td></td>
</tr>
</tbody>
</table>
Operating port authority (OPA): key roles

The operating port authority has four principal functions:

**Landlord**
- Build and maintain terminal infrastructure
- Manage wider port estate
- Manage waterways/channels

**Facilitator**
- Co-ordination
- Planning and development
- Arranging
- Marketing
- Media
- Stakeholder relations

**Regulator**
- Overseeing
- Mediator
- Safety and Environment

**Terminal operator**
- Equip terminal
- Manage labour
- Win and retain customers
- Commercial interactions
- Day to day terminal management
Operating port authorities (OPAs) have direct control of the strategy and operation of the port

Operating port authorities (OPAs) can have challenging overlaps in responsibilities

- OPAs can coordinate all aspects of the development and operation of a port
- OPAs can become immersed in day to day operations at the cost of strategic development

Diagram:

- Port Authority activities
- Cargo handling activities

DUTY

??

PROFIT
Estimated 2011 split by institutional structure (by throughput)

Globally

- Public landlord – private terminal operator” model dominates internationally
- Much of the “100% public/state” share is accounted for by very large volumes in the home ports of quasi-private companies such as PSA, DP World and Shanghai International Port Group

North America

- “Public landlord – private terminal operator” model dominates even more in North America
- Stevedoring options are more evident in North America (as they are largely unique to the region)
- Global Marine Terminal in New York is believed to be the only privately operated terminal in North America where the freehold is also privately owned
- Around half of the “100% public/state” share is accounted for by Port of Virginia

Note: VIT @ APMT is included under 100% public/state owned and operated even though the infrastructure is privately owned
## Types of global / international terminal operators

The aims and objectives of terminal operators, hybrids and carriers vary significantly

<table>
<thead>
<tr>
<th></th>
<th>Global/international terminal operators</th>
<th>Global/international hybrids</th>
<th>Global carriers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main activity</strong></td>
<td>Terminal operation is prime purpose of business</td>
<td>The main activity of the company is liner shipping, but terminals form a separate business unit</td>
<td>Container shipping is prime purpose of business</td>
</tr>
<tr>
<td><strong>Financial aims</strong></td>
<td>Terminals are profit centres</td>
<td>Terminals are run more as profit centres than cost centres, although the degree varies</td>
<td>Terminals are usually cost centres</td>
</tr>
<tr>
<td><strong>Efficiency aims</strong></td>
<td>Greater efficiency of terminals through implementing common practices</td>
<td>Greater efficiency of terminals through implementing common practices</td>
<td>Greater efficiency of the shipping network rather than the terminals</td>
</tr>
<tr>
<td><strong>Main purpose of terminals network</strong></td>
<td>Spreading of investment risk, maximisation of profits</td>
<td>Terminal network supports shipping activities but also provides an additional business stream</td>
<td>Terminal network supports shipping activities and strategy</td>
</tr>
</tbody>
</table>
## Main global/international container terminal operators

<table>
<thead>
<tr>
<th>Global/international terminal operators</th>
<th>Global/international hybrids</th>
<th>Global carriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hutchison Ports</td>
<td>• NYK Line (Ceres)</td>
<td>• Evergreen</td>
</tr>
<tr>
<td>• PSA International</td>
<td>• COSCO (Cosco Pacific and Cosco Container Line)</td>
<td>• Hanjin</td>
</tr>
<tr>
<td>• DP World</td>
<td>• CMA CGM (Terminal Link)</td>
<td>• K Line</td>
</tr>
<tr>
<td>• APM Terminals *</td>
<td>• China Shipping Terminal Development</td>
<td>• OOCL</td>
</tr>
<tr>
<td>• Terminal Investment Limited **</td>
<td>• APL/NOL</td>
<td>• MOL</td>
</tr>
<tr>
<td>• Eurogate</td>
<td></td>
<td>• Yang Ming</td>
</tr>
<tr>
<td>• SSA Marine</td>
<td></td>
<td>• Hyundai</td>
</tr>
<tr>
<td>• Grup TCB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ICTSI</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Particular emphasis is placed by APMT on having a clear distinction between terminal operating business and liner business. Liner business is a sister company, not a parent company.

** Terminal Investment Limited is understood to not be owned by MSC, but it does have strategic relationship with the line.
Intra-port competition: single operator and multiple operator ports

Most ports have multiple container terminal operators

Top 150 container ports globally: 2011 split by teu throughput

- Single operator: 14%
- Multiple operators: 86%

Note: Government operated ports included under single operator

Top 150 container ports globally: 2011 split by number of ports

- Single operator, 37
- Multiple operators, 113

Note: Government operated ports included under single operator
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Port of Virginia: institutional structure

PoV has both state owned and private landlords. VIT operates all terminals under a service agreement.

Virginia International Terminals, Inc. (VIT) is a non-stock, non-profit corporation that operates all the marine terminals owned by the VPA through a Service Agreement with the VPA.
Port of Virginia: location and hinterland

Mid Atlantic coast port; third largest on the US East Coast

- 70% of the traffic moves by road and barge to closer locations
- 30% of the traffic moves by rail to the distant hinterland.

US East coast Ports container throughput 2011 (m TEU)

NEW YORK 5.5
SAVANNAH 2.9
PORT OF VIRGINIA 1.9
CHARLESTON 1.4

3rd largest container port on US East coast
Port of Virginia: competitive positioning

Virginia has deeper water than competitors and has built capacity but share (USEC) has slipped

Channel depth at competing ports (feet)

<table>
<thead>
<tr>
<th>Port</th>
<th>2011</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>+5</td>
<td>+5</td>
</tr>
<tr>
<td>Savannah</td>
<td>+6</td>
<td></td>
</tr>
<tr>
<td>Virginia</td>
<td></td>
<td>+5</td>
</tr>
<tr>
<td>Charleston</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Utilisation at competing ports

Market share of top 3 ports on US east coast

<table>
<thead>
<tr>
<th>Year</th>
<th>New York</th>
<th>Savannah</th>
<th>Virginia</th>
<th>Charleston</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>32%</td>
<td>16%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>2008</td>
<td>33%</td>
<td>16%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>2009</td>
<td>33%</td>
<td>17%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>2010</td>
<td>34%</td>
<td>18%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>2011</td>
<td>33%</td>
<td>18%</td>
<td>12%</td>
<td>12%</td>
</tr>
</tbody>
</table>
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Key questions:

Which institutional structure?
- Economic policy of the commonwealth and views on private and public sector roles;
- Financial position of the Commonwealth: availability of funds for port development; requirement of funds for other areas of public expenditure
- Attitude to financial risk
- Views on effectiveness of OPA and LPA models in the context of PoV, particularly separation of port authority and terminal operator roles
- Attractiveness of possible concession agreement
- Financial proposal

How much capacity required?
- Capacity required to handle projected demand
- Which terminals most effectively and efficiently provide this capacity
- Is any capacity surplus to requirements?

Aim

Overarching aim should be to implement the solution that generates the most competitive port in the medium to long term:

- The best terminal operating function/performance
- The best port authority function/performance
- Generating optimum through transport costs to the target hinterland

This is not a linear decision: different elements may combine to give several viable solutions. Solutions need to viewed as a whole in the light of key questions.
## Analytical Framework (Cont.)

Decision is complex and will require quantitative and qualitative analysis and judgement

<table>
<thead>
<tr>
<th>How many terminal operators?</th>
<th>What regulation is required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Economies and scale and flexibility</td>
<td>• Non-discrimination</td>
</tr>
<tr>
<td>• Competition</td>
<td>• Tariff</td>
</tr>
<tr>
<td>• Resulting efficiency and terminal handling costs</td>
<td></td>
</tr>
<tr>
<td>• Fair market environment for terminal operators</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Which terminal operator(s)?</th>
<th>How much financial investment is required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Delivered efficiency, reliability and cost</td>
<td>• Quay and estate maintenance</td>
</tr>
<tr>
<td>• Track record</td>
<td>• Infrastructure development</td>
</tr>
<tr>
<td>• Commitments in concession agreement</td>
<td>• Channel dredging</td>
</tr>
<tr>
<td>• Financial proposal</td>
<td>• Equipment replacement and additions</td>
</tr>
</tbody>
</table>
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