MTR’s Experiences in PPP for Railway Projects

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MTR Businesses in China and Overseas

- Over 1,200km route length (exclude shared track)
- Over 14 Million Passenger trips per weekday (using line based counting)
- Line based passenger trips do not match with the passenger trip data in annual report
Why cities need railways?

• High capacity

• High energy efficiency, low carbon emission
Why cities need railways?

Effective land use

<table>
<thead>
<tr>
<th>Modal Characteristics</th>
<th>Bus</th>
<th>Bus Rapid Transit</th>
<th>Tram</th>
<th>Light Rail</th>
<th>Metro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Flow (per hour per direction)</td>
<td>2,500</td>
<td>6,000</td>
<td>12,000</td>
<td>18,000</td>
<td>30,000 &amp; above</td>
</tr>
<tr>
<td>Average speed (kph)</td>
<td>10-14</td>
<td>15-22</td>
<td>15-22</td>
<td>18-40</td>
<td>18-40</td>
</tr>
<tr>
<td>Reliability</td>
<td>Improving</td>
<td>Good</td>
<td>Medium to Good</td>
<td>Good</td>
<td>Very Good</td>
</tr>
<tr>
<td>Road-space Allocation</td>
<td>Mixed running with traffic</td>
<td>Totally segregated alignment</td>
<td>Mixed running and on-road tram lanes</td>
<td>Largely segregated alignments</td>
<td>Totally segregated</td>
</tr>
<tr>
<td>Land Consumed</td>
<td>15 – 25 times</td>
<td>10 – 15 times</td>
<td>5 – 10 times</td>
<td>3 – 6 times</td>
<td>All underground: 1 time Surface: 2-3 times</td>
</tr>
</tbody>
</table>

Source: Transport for London CoMET & others
External benefits of Metro is Huge – Commercial & residential development opportunities - 2

• Analysis of external benefits from Island Line West Extension and South Island Line (East):
  – Economic and environmental benefits to Hon Kong, (NPV) > HK$ 19 Billion
  – Land value and property tax (NPV) > HK$ 21 Billion
  – Cumulative benefits for 30 years at HK$ 300+ to 400+ Billion (Out-turn value)

Source: The Centre of Urban Planning and Environmental Management, The University of Hong Kong
Railways have low investment return

- Large initial capital investment
- Significant on-going capital investment
- Fare is kept low by politics and competition with buses (Buses use public infrastructure)
- MTR’s railway’s return on asset (ROA) is around 1.5% in recent years
- Railway investment is therefore not attractive.
To make Railway investment worthwhile,

- Either reduce the initial or on-going investment
  - PPP is an example
- Or divert some external economic benefits back into subsidising the railway
  - “Rail + Property”, “TOD” are typical examples
- Private participation can bring in commercial discipline and private sector efficiency
MTR Investment Models

- **PPP**
  - Beijing Lines 4, 14, 16, Hangzhou Line 1
  - Sydney North West Rail link
  - Shenzhen Line 4 (BOT)
- **Initial Cash subsidy model**
  - Hong Kong Disneyland Resort Line
  - Hong Kong West Island Line
- **“Concession Model”**
  - Hong Kong East Rail Line, West Rail Line, Ma On Shan Rail, Light Rail network
- **Rail + Property model**
  - Most of HK’s other railway lines
PPP

• Government (Public) builds part of the project (usually civil works) to reduce initial capital requirements, thus increasing Private investment return.

• The basis of public participation is because of the public service nature of the project

• Private sector efficiency, commercial discipline and customer-oriented approach will then provide an overall value-for-money service
Initial Cash Subsidy

- This can be considered to be a form of PPP.
- Government (Public) pays for part of the investment (but not build it). So the Private investor invests less but has to bear additional construction risks.
“Concession Model”

• Government leased existing railway lines to the investor.
• The investor has to pay rent and be responsible for the asset on-going investment.
• This reduces the total Private investment and improves investment return.
• This can also be considered to be a form of PPP.
Rail + Property

• This can also be considered a form of PPP.

• Government (Public) provides land development rights. This increases total revenue and improves investment return.

  This also encourages railway to carefully protect the surrounding land and environment, and to increase land value (through better land-use integration and noise / vibration mitigation), thus maximising the external economic benefits of railways.
## PPP and Related Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Public Participation</th>
<th>Private Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPP</td>
<td>Build Part A, Supervise performance</td>
<td>Build Part B, O&amp;M, Ongoing investment</td>
</tr>
<tr>
<td>Initial Cash Subsidy</td>
<td>Give Cash, Supervise performance</td>
<td>Build the line, O&amp;M, Ongoing investment</td>
</tr>
<tr>
<td>Concession</td>
<td>Build whole line, Supervise performance</td>
<td>Rent the line, O&amp;M, Ongoing investment</td>
</tr>
<tr>
<td>R+P</td>
<td>Give land rights, Supervise performance</td>
<td>Build the line, O&amp;M, Ongoing investment</td>
</tr>
</tbody>
</table>

Note: O&M = Operations and Maintenance
More Commonly Found PPP and Related Models

Outsourced Models
- Service Contract; Management Contract;
- Design, Build with / without Maintenance;
- Operations & Maintenance;
- Design, Build and Operate

Concession Models
- Lease, Upgrade, Operations and Transfer*;
- Purchase, Upgrade, Operations and Transfer;
- Build, Operate and Transfer*;
- Design, Build and Transfer;
- Private Funding Initiative*

Private Ownership Models
Concluding Remarks

- Railway can create significant economic benefits external to itself.
- PPP reduces investment intensity to enable Private investment to take part, so that private sector management can create better value-for-money service.
Thank You