Workshop 1
Integrating rail and bus based modes (including BRT) into a user-relevant transport system
Focus Areas:
- Challenges of Modal Integration
- Role for transit modes
  - Bus, BRT, LRT, Rail

Strategic Structure
- Intermodal Integration
- Intermodal Competition
- BRT system development & challenges compared to rail
Workshop 1 – FOCUS and STRUCTURE

- **Focus Areas:**
  - Challenges of Modal Integration
  - Role for transit modes
    - Bus, BRT, LRT, Rail

- **Strategic Structure**
  - Intermodal Integration
  - Intermodal Competition
  - BRT system development & challenges compared to rail

#### Tactical Structure (10 workshop sessions)

**Intermodal Integration (3 sessions)**

- A. Perspectives on Intermodal Integration
  - 4 Papers

**Intermodal Competition (2 sessions)**

- B. Perspectives on Intermodal Competition
  - 4 Papers

**BRT systems (3 sessions)**

- C. User and Operational Perspectives on BRT System Performance
  - 2 Papers

- D. BRT Design and Development Challenges
  - 2 Papers

- E. BRT Implementation and Future Pathways
  - 1 Paper
Intermodal Integration

- **What is transit mode integration?**
- **How enhanced?**
- **Challenges**
- **Best Practices**
- **User Relevant Aspects**

**Seamless mobility chains through the city** including:
- Networks (Cooperative, Complementary not Competitive)
- Fares/Information
- Physical Interchange Design
- Land Use
- Organisations
Intermodal Integration

What is transit mode integration;

How enhanced?

Challenges

Best Practices

User Relevant Aspects

需一个愿景 (5 E’s)
需清晰的组织结构并有强烈的“买一”对目标的认同

STRATEGIC
- Aims, Consultation (buy-in), Organisations, Regulatory Structures

TACTICAL
- FUNCTIONAL elements; system design, network design, modes, services, routes, regulations,

OPERATIONAL
- operations, wayfinding, visible by user, physical stuff, information

Van Oort, N. et al. (2017)
Intermodal Integration

What is transit mode integration?

How enhanced?

Challenges
- Lack of Vision
- Poor Organisational Cooperation and Control
- Complex and Difficult to Articulate Concept

Best Practices

User Relevant Aspects
Intermodal Integration

What is transit mode integration?

- Mega Cities
  - London, Paris (Anne Hidalgo; mayor), Hong Kong (UITP top integrated city)

- Mid sizes Cities
  - Stockholm, German cities
  - Amsterdam, Singapore, Zurich, Olso, Helsinki

- South America Mega Cities
  - ???

- Lower Density Developed
  - Gold Coast/Canberra (organizational, land use transport)
  - Portland – Tri-Met
  - Transport for Newcastle??

How enhanced?

Best Practices

User Relevant Aspects

Challenges

Technology new solutions

- Google maps (tech fix); Smart Cards
- New Mobility Solutions; Smart Phones
Intermodal Integration

What is transit mode integration?

How enhanced?

Challenges

Best Practices

User Relevant Aspects

- **It's not about the Mode stupid!**, it’s the user experience and wider impacts on society
- Safety, travel time, reliability, comfort, land use
Intermodal Public Transport Competition

- PT Competition Not Common (Wasteful Competition) even in deregulated environment – for all modes; there is a lot

  BUT is Competition Choice?

- BIG City Transit Overlap Geographies (Hong Kong/Singapore)
- Ubiquitous Bus Coverage; Natural Overlap
  - Bus demand more affected by Rail (meta study)
  - But bus local function; rail distance longer function (incidental Competition)
- Competition by Good Design
  - London Tube capacity relief; fare choice
  - Provides resilience (New York; Hurricane Sandy)
- Nice to have choice (for wealthy) cities
<table>
<thead>
<tr>
<th>Can Be Good</th>
<th>Can be Bad</th>
<th>Better in high volume, mass transit cities – not so good elsewhere</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Design (capacity, fare choice, resilience)</td>
<td>Wasteful competition (pax losers)</td>
<td></td>
</tr>
<tr>
<td>Competition (Conventional Wisdom; reducing price, increase service)</td>
<td>Poor image (on route competition; chaos of BRT queues)</td>
<td></td>
</tr>
</tbody>
</table>

- **Why/How Does It Occur?**
- **Impact**
- **How Managed**
- **Roles for Transit Modes**
- **Trade Offs Between Modes for Users**
Intermodal Public Transport Competition

- Strong Authority; public interest
- Good Monitoring

Why/How Does It Occur?

Impact

How Managed

Roles for Transit Modes

Trade Offs Between Modes for Users
Intermodal Public Transport Competition

- Why/How Does It Occur?
- Impact
- How Managed
- Roles for Transit Modes
- Trade Offs Between Modes for Users

- ITS NOT ABOUT THE MODES STUPID!!!! Its about the user (and wider benefits)
- Some Modes more suited to certain conditions (50K/hr limit, corridor space)
Bus Rapid Transit

Challenges/Opportunities for New Modes (e.g. BRT)

- Institutional Divide (rail bias)
  - Lack of wholistic planning
- BRT “OVER Flexibility”; mode to select to make compromises
- Perception of Non-Permanence/ Land Use benefits
- Bad results in some cases (BRT)
- Lack of Continuous Innovation
- **EXCESSIVE SUCCESS** Ridership growth beyond planning capacity

How to Address Them for User (Society) Outcomes
Bus Rapid Transit

**Challenges/Opportunities for New Modes (e.g. BRT)**

- **Institutions**
  - Strong central agency, clear goals, power
  - Stronger evaluation criteria inclusive of wider society impacts
  - Stronger land use/intermodal cooperation/integration
  - Innovation evolution

- **Better technical direction on**
  - Flexibility choices
  - Permanence/land use effects

- **Learn from bad as well as good experience**

- **Understand BRT limit thresholds**;
  - bus industry needs to accept rail as needed above thresholds
  - Rail industry needs to see the value of bus as mass transit

**How to Address Them for User (Society) Outcomes**
Workshop 1 – Research Futures

**Intermodal Integration**
- Physical integration
- Organisational integration
- Traveller preferences
- Bike access data (behaviors)
- Data integration (ownership)
- Rating and ranking of cities; integration scores idea (UITP)

**Intermodal Competition**
- More cross elasticity studies in Asia/South America where transit competition is large
- Research national preferences from BRT/LRT – no developing country work (mostly metro/BRT; this needs to be done)
- More research on catchment type; interesting low density long catchment walk evidence
- BRT and Land Use impacts; how service levels not modes affect land value uplift

**Bus Rapid Transit**
- Integration walking/bikes/; land use beyond PT
- Value uplift for new modes including BRT
- Vehicle design
- Automation opportunities
- Integration of real time and other information
- Control dispatch technologies and new ticketing (phone payment)
THANK YOU