Discussion on Seamless Network Design for Public Transport

2012 ITF/KOTI Joint Seminar: Seamless Public Transport for All

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Sangjin HAN
Seams in Public Transport

• **Time**
  - No service when I want: Sunday, night
  - Frequency issues

• **Space**
  - No service where I want to go: suburban areas
  - Route and stop issues

• **Transit between modes**
  - Intra-regional PT vs. Inter-regional PT
  - Access transport (walking & cycling) vs. PT
  - Asan KTX station, Airports
  - Ticketing/moving/waiting/security check
Some evidence we have (1)

• **PT patronage can be increased**
  - 14 small towns in Nordrhein-Westfalen
  - network and service redesign

• **Optimal frequency**
  - every 10 to 5 min./hour
  - coordination of timetables

• **Network effect in PT market**
  - Conventional $\varepsilon = 0.4 - 0.7$ (TRL report 593, 2004)
  - Theoretical $\varepsilon = 5.5$ [Mees 2000; Squareville example]
Some evidence we have (2)

• **Integration between modes is beneficial**
  - Zurich example (between rail and bus: routes and timetable)
  - Demand responsive

• **Speed vs. Spacing of Stops**
  - operation speed 20-30km/h with 600m spacing (city bus)
  - 400m for 5 min. Walk
  - success of M-bus in Korea

• **Longer transfer in main transit hub**
  - 350m (7min) between KTX station and bus terminal
  - Design is crucial for seamless integration between modes
  - Hub & Sub-Hub & Spoke
Some more things to know (1)

• Holistic understanding about PT

  - Specific Elements of PT
    Routes, Timetable, Stop spacing ☞ Land Use
    Fares, arrival information
    Vehicle types, track, signal etc. ☞ Engineering
    Operators/Regulations ☞ Policy Analysis, Economics

  - Independent mode but has the role in the whole system
    Long or short distance modes, walking and cycling, High speed rail, Bus
    Modal competitiveness over travel distance
Some more things to know (2)

• How much does it cost?
  - More frequent service vs. cost
  - More service routes vs. cost
  - Infra investment vs. operation cost
  - How much social benefit/Is it profitable?
  - Optimal fleet size/vehicle types/new systems

• Rational to investment on PT?
  - Cost effectiveness
  - Sustainable development (Energy, GHG)
  - Job creation

• Can we make cheaper but better PT?
  - Social welfare/subsidy
  - PT fares are higher in some cities than others
Can public transport win over private cars?

• Yes
  - As a car is getting difficult to use: congestion, pollution, no parking
  - As PT is getting convenient to use: faster, less time/space seams

• No
  - As we keep comfortable environment for cars: advocates for cars will do something (ITS, M2M)
    ☞ maybe we need intentional penalty on cars
    Median bus lane/congestion charge