WCTR2013Rio
Key Findings and Future Needs

Reports from
Topic Area Managers
and WCTR-Y Chair
**TA A: Transport Modes**

**TA Manager:** Anming Zhang (presented by Tae Oum)
(Focus on Single Modes with a few exceptions such as Air+High Speed Rail, etc.)

**Session Tracks, Number of Oral+Poster Papers, and Session Track Organizers:**

<table>
<thead>
<tr>
<th>Session</th>
<th>Mode Description</th>
<th>Number of Papers</th>
<th>Organizer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Air Transport (SIG 8)</td>
<td>41 papers</td>
<td>Martin Dresner</td>
</tr>
<tr>
<td>A2</td>
<td>Maritime Transport and Ports (SIG 2)</td>
<td>35 papers</td>
<td>Eddy van de Voorde</td>
</tr>
<tr>
<td>A3</td>
<td>Rail Transport (SIG 13)</td>
<td>28 papers</td>
<td>John Preston/Ingo Hansen</td>
</tr>
<tr>
<td>A4</td>
<td>Urban and Inter-City Road Transport</td>
<td>39 papers</td>
<td>Qiang Meng/Robin Lindsey/Hai Yang</td>
</tr>
</tbody>
</table>

**Total: 135 Papers, including 12 posters**
TA A: Transport Modes

A1 – Air Transport (SIG 8) 41 papers
A2 – Maritime Transport and Ports (SIG 2) 35 papers
A3 – Rail Transport (SIG 13) 28 papers
A4 – Urban and Inter-City Road Transport 39 papers

Issues dealt with:
Within each mode, a wide range of papers dealt with productivity, regulation, policy analysis, competition, infrastructure capacity and management, carrier management, operations & logistics, environment, safety, traffic and network management, etc.

Types of analysis: theoretical, methodological, empirical, institutional; engineering, economics, OR, geography, political science, etc.
The findings/results are advances...

- in literature on each transport modes;
- for researchers in the field;
- for advising public policy formulation; carrier management (airlines, shipping, rail carriers); transport infrastructure capacity planning, operations and management (airports, ports, rail, urban transport and road networks)
- across the modes: e.g., HSR rail and its interactions with air transport and freight transport, or choice probability modeling of port hinterland for intermodal freight transport operations.
Missed Research (or More Research Needed):
• Climate Change and Public Policy Issues (probably because these papers are shifted to Topic Area F)
• More research needed on Africa, China, Central America, South America (probably due to data availability)
• More research needed:
  ✓ on transport security cost, who should pay for, impacts on economy;
  ✓ on catastrophic disaster management;
TA B: Integrated Freight Transport and Logistics Systems

**Topic Area Manager:** Michael Browne

**Session Tracks, Number of Oral+Poster Papers, and Session Track Organizers:**

<table>
<thead>
<tr>
<th>Track</th>
<th>Description</th>
<th>Papers</th>
<th>Organizer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Integrated Supply Chain Management</td>
<td>15 Papers</td>
<td>Seraphim Kapros</td>
</tr>
<tr>
<td>B2</td>
<td>Integrated Freight and Fleet Management</td>
<td>6+4 Papers</td>
<td>Jacek Zak</td>
</tr>
<tr>
<td>B3</td>
<td>Intermodal Freight Transport</td>
<td>20 Papers</td>
<td>Johan Woxenius</td>
</tr>
<tr>
<td>B4</td>
<td>Urban Goods Movement</td>
<td>30 + 2 Papers</td>
<td>Mike Browne &amp; Toshinori Nemoto</td>
</tr>
<tr>
<td>B5</td>
<td>Sustainable Freight Transport and Green Logistics</td>
<td>18 Papers</td>
<td>Christophe Rizet &amp; Alan McKinnon</td>
</tr>
<tr>
<td>B6</td>
<td>Freight Modelling</td>
<td>17 + 2 Papers</td>
<td>Lori Tavasszy</td>
</tr>
</tbody>
</table>
Production and extended supply chains: Challenges and bottlenecks

Product specific issues: Food supply chains

Communications: V2V and V2I

Port hinterlands: The importance of intermodal initiatives

Governance issues in intermodal transport

Modal choice, modelling and decision support systems
B.4 – Urban Goods Movement 30 papers
Frameworks and approaches: Stakeholders, measures and actions
Case Studies: Management and transferability
Analytical tools: Surveys, models and evaluation
Planning and policy interventions: Decision-making and the role of partnerships

B.5 – Sustainable Freight Transport & Green Logistics 18 papers
Methodology issues: Calculations, life-cycles, carbon efficiency
Policy initiatives: Green corridors, policy instruments
Company approaches: Private sector actions, collaborations in the supply chain
Humanitarian Logistics: Cases, analysis and frameworks
B.6 – Freight modelling  17 papers

Global supply chains: Location, integration and transport

Large scale models: Interregional freight flows, multi agent simulation

Supply chain design: Carrier and receiver, changing concepts

Network analysis: Simulation, optimization (link to data issues)

Missing Research

Social aspects

Integration (it is there but there are gaps)

Combining the various levels in the supply chain (some progress – much to do)

Understanding stakeholder behaviour
TA C: Traffic Operations, Management and Control

**Topic Area Manager:** Manfred Boltze

**Session Tracks, Number of Oral+Poster Papers, and Session Track Organizers:**

- **C1** Traffic Theory and Modelling  
  17+3 Papers  
  Nicolas Geroliminis
- **C2** Traffic Control and Management (SIG 15)  
  21+9 Papers  
  Hideki Nakamura
- **C3** Transportation Network Analysis  
  9 Papers  
  Meng Qiang
- **C4** Safety Analysis and Policy (SIG 3)  
  44+5 Papers  
  Ian Savage
- **C5** ICT for Traffic Systems  
  10+2 Papers  
  Costas Panou
- **C6** Infrastructure Management (SIG 5)  
  8+3 Papers  
  Rabi Mishalani

**Total:** 131 papers, including 22 posters.
TA C: Traffic Operations, Management and Control

C.1 – Traffic Theory and Modelling 20 papers
C.2 – Traffic Control and Management 30 papers
C.3 – Transportation Network Analysis 9 papers

Traffic Assignment and Route Choice Models: oversaturated networks, impact of traffic information

Traffic Flow Models: basic parameters, oversaturated networks, heterogenous traffic, agent-based simulation

Online Traffic Control: LOS estimation, dynamic OD estimation, incident detection

Traffic Signal Control: cooperative systems (C2C and C2I), pedestrian behaviour, BRT and Transit signal priority

Dynamic Traffic Management: flexible lane operation (merging sections, hardshoulder lanes), incident management

Capacity Analysis for Road Infrastructure: roundabouts
C.4 – Safety Analysis and Policy  49 papers
Comparative Studies: international, seasonal distribution
Safety Analysis for Road User Groups: senior + young drivers, pedestrians, cyclists, motorcycles
Modeling: predicting crash frequency
Factors Influencing Traffic Safety: urban street structure, speed limits and enforcement, sun glare, using mobile phones, road geometry
Safety in Work Zones

C.5 – ICT for Traffic Systems  12 papers
Video Image Recognition Technology: Analysis of vehicle trajectories, mixed traffic performance, pedestrian conflicts
Probe Vehicle Data (FCD), Floating Phone Data (FPD)
Impact of Information Provision on network performance
Warning System to improve workers safety in work zone areas
C.6 – Infrastructure Management  11 papers

Infrastructure Live Cycle Assessment
Optimal Maintenance, Rehabilitation and Replacement Policies: considering the impact of construction activities on the road network performance (e.g. delays) in this optimization

Optimal Sampling for Infrastructure Condition Assessment

Missing Research
Environment-responsive Traffic Control
Quality Management
Floating Phone Data
Mixed Traffic Flow
... and so many others ...
The error term:
from a practical assumption (Gumbel→MNL)
to a central role (HL, ML, GEV).

\[ U_i = V_i + \varepsilon_i \]
The Present

51/108

Understanding trip patterns and behaviour: time, consumption, space, income, social networks.

Also LV, perceptions, interaction terms.

“Emerging” modes: bike, walk.
The Future

Improved theories of behaviour: expanding, complementing, substituting.

Data on systematic choices: massive data (smart cards, smart phones, GIS); time use data; expenditures; location, dynamics.

\[ U_i = V_i + \varepsilon_i \]
Sincere thanks to

Doina Olaru

and to the 18 session chairs
## TA E: Transport Economics, Finance and Evaluation

**Topic Area Manager:** Fusun Ulengin, Marco Ponti

<table>
<thead>
<tr>
<th>E1</th>
<th>Ex post Evaluation at the Macro, Regional and Project level</th>
<th>Bonnel Patrick</th>
<th><a href="mailto:patrick.bonnel@entpe.fr">patrick.bonnel@entpe.fr</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>E2</td>
<td>Systems Analysis and Integrated Assessment</td>
<td>Füsun Ülengin</td>
<td><a href="mailto:fulengin@gmail.com">fulengin@gmail.com</a></td>
</tr>
<tr>
<td>E3</td>
<td>Transport Infrastructure Investment and Economic Analysis</td>
<td>Elizabeth Deakin</td>
<td><a href="mailto:edeakin@berkeley.edu">edeakin@berkeley.edu</a></td>
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<tr>
<td>E4</td>
<td>Methodological Progress of Evaluation Approaches</td>
<td>Werner Rothengatter</td>
<td><a href="mailto:rothengatter@iww.uni-karlsruhe.de">rothengatter@iww.uni-karlsruhe.de</a></td>
</tr>
<tr>
<td>E5</td>
<td>Transportation Pricing and Finance</td>
<td>Andreas Kopp</td>
<td><a href="mailto:akopp@worldbank.org">akopp@worldbank.org</a>,</td>
</tr>
<tr>
<td>E6</td>
<td>Transport Economic Regulation— (SIG4)</td>
<td>Marco Ponti</td>
<td><a href="mailto:marco.ponti@polimi.it">marco.ponti@polimi.it</a></td>
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</tbody>
</table>
Total papers 81, of which 12 posters

<table>
<thead>
<tr>
<th>E1-1</th>
<th>Ex post Evaluation at the macro, regional and project level, 12 p.</th>
<th>992</th>
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<tr>
<td>E1-2</td>
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<td>2304</td>
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<td>2368</td>
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<td>E2-1</td>
<td>Systems Analysis and Integrated Assessment, 6 p.</td>
<td>775</td>
<td>913</td>
<td>1535</td>
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<td>Transport Infrastructure Investment and Economic Analysis, 22 p.</td>
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<td>2077</td>
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<td>3202</td>
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<td>990</td>
<td>1615</td>
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<td>E4-1</td>
<td>Methodological Progress in Evaluation Approaches, 13 p.</td>
<td>2965</td>
<td>3161</td>
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<td>E5-1</td>
<td>Transport Pricing and Finance, 20 p.</td>
<td>2514</td>
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<td>E6-1</td>
<td>Transport Economic Regulation (SIG 4), 8 p.</td>
<td>2578</td>
<td>2686</td>
<td>2971</td>
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<td>E6-2</td>
<td></td>
<td>1230</td>
<td>1959</td>
<td>2276</td>
<td>2943</td>
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</table>
Main overall results:

Public Private Partnership: well studied and developed, with a wide range of case studies and innovative approaches proposed, also criticizing current practices

CBA improvements: a rather common mistake exposed, and several important improvement suggested

Congestion in public transport: begins to appear as a relevant economic issue

HST economics: well present, also in critical terms

Optimization of urban transport: some innovative theoretical contribution, of special interest given also the fact that CBA is not consolidated in this service sector

Road congestion: this remain a rather central theme, together with pricing issues
Weak areas and possible further research issues:

**Macro economics of transport policies and investments**: almost absent, even if the present crisis suggest a special attention to this issue (shadow cost of labour, etc.)

**Economic regulation both of services and of infrastructure**: still in its infancy, both in terms of theory and of good practices and case studies

**Evaluation and monetization of external costs**: nothing new, even if their importance is growing, and their trends deserve much more attention

**Distributive aspects both of policies (tariffs, taxes, public transport) and in CBA of investments**: not enough developed, even if they are crucial for public decisions

**Option theory**: this may well became an important tool for evaluating also public investments (especially in terms of flexibility, and de-investing potential)
### TA F: Transport, Land Use and Sustainability

**Topic Area Manager:** Ruth Steiner

**Session Tracks, Number of Oral+Poster Papers, and Session Track Organizers:**

<table>
<thead>
<tr>
<th>Track</th>
<th>Description</th>
<th>Papers</th>
<th>Organizers</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Land Use and Transport Policy and Planning (SIG1)</td>
<td>28+5</td>
<td>Kenji Doi, Maddi Garmendia</td>
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<tr>
<td>F2</td>
<td>Land Use, Transport and Environmental Interactions and Modelling (SIG1)</td>
<td>25+1</td>
<td>Francisco Martinez, Cristian Cortes</td>
</tr>
<tr>
<td>F3</td>
<td>Urban Environment, Livability, and Non-motorised Transport</td>
<td>20+4</td>
<td>Eva Heinen, Karst Guers</td>
</tr>
<tr>
<td>F4</td>
<td>Transport and Climate Change (SIG11)</td>
<td>26+5</td>
<td>Patrick Jochem, Yoshitsugu Hayashi</td>
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<tr>
<td>F5</td>
<td>Sustainability and Environmental Ethics (SIG11)</td>
<td>24+3</td>
<td>Cameron Gordon</td>
</tr>
</tbody>
</table>

**TA C:** Total of 141 papers, including 18 posters.
TA F: Transport, Land Use and Sustainability

F.1 – Land Use and Transport Policy and Planning 33 papers

**Accessibility and Mobility:** residential location and travel choice, transit corridors and urban development, commuting

**Transport Capacity:** large scale projects, bus rapid transit, high-speed rail, parking and urban space, goods movement

F.2 – Land Use, Transport and Environment Interactions and Modeling 26 papers

**Transport and Land Use:** integrated transport-land use models, disaggregated, multicriteria, agent-based

**Transport and Urban Environment:** urban form, transit and housing, trip generation and mode choice, attitudes and lifestyles

**Modeling of Policies:** pricing, energy, air quality, and environmental impacts
F.3 – Urban Environment, Liveability, and Non-motorized Transport

Planning for Modes and Context: integration of modes, pedestrians, bicycles, urban, intercity, rail, BRT, HSR

Transport Interactions with Urban Environment: land use and transport, transit-oriented development, neighborhood design and health, residential dissonance and travel, individual mobility, social and spatial dynamics, air quality and environment

F.4 – Transport and Climate Change

Technology: fuel source, electric vehicles, electrification of system, building and raw materials, operational efficiency

Impacts: CO$_2$ emissions, oil demand

Policies: tax incentives, vehicle retirement, fuel taxes, sales taxes, emissions trading, equity

Modes: air, high-speed rail, multimodal, inland navigation, freight
F.5 – Sustainability and Environmental Ethics  27 papers

**Demographics:** aging population, youth, shrinking metropolis, intergeneration equity

**System characteristics:** performance measures, social and human capital, happiness, quality of life

**Missing Research**
- Geospatial Modeling
- Multi-level Modeling
- Integrated Transport-Urban Models
- Urban Design and Mode Choice

...and so many others...
# TA G: Planning, Policy and Management

**Topic Area Manager:** Antonio Musso

**Session Tracks, Number of Oral+Poster Papers, and Session Track Organizers:**

<table>
<thead>
<tr>
<th>Session Track</th>
<th>Title</th>
<th>Papers</th>
<th>Organizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Institutional Performance Governance and Decision-making Processes</td>
<td>36+3</td>
<td>Angel Aparicio</td>
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<tr>
<td>G2</td>
<td>National and Regional Policy Development</td>
<td>23+2</td>
<td>Bruno Montella</td>
</tr>
<tr>
<td>G3</td>
<td>Urban Transport Policy (including non-motorised modes) (SIG 10)</td>
<td>60+9</td>
<td>Stephen Ison</td>
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<tr>
<td>G4</td>
<td>Social and Equity Impacts of Transportation</td>
<td>36+2</td>
<td>Karen Lucas</td>
</tr>
<tr>
<td>G5</td>
<td>Transport for Tourism, Mass Events and Emerging Policy Issues</td>
<td>10+2</td>
<td>Paolo Guglielminetti</td>
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<tr>
<td>G6</td>
<td>Transport and Security (SIG 14)</td>
<td>7</td>
<td>Yoram Shiftam</td>
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</table>

**Total:**

- **172 papers, including 18 posters.**
G.1 – Institutional Performance Governance and Decision-making Processes  36 papers
G.2 – National and Regional Policy Development  23 papers
G.3 – Urban Transport Policy  60 papers

Policies and Governance: decision making processes, demand management, regulatory issues
Non Motorized Modes: requirements analysis for cyclists and pedestrians, case studies (national/locals)
Energy Policies: electric vehicles management
Transport and Land Use: impacts assessments (mainly economic point of view), accessibility
Urban Mobility: Pricing, parking issues, public transport, paratransit
G.4 – Social and Equity Impacts of Transportation  36 papers

**Society:**
- gender issues, mobility for elderly and physically-challenged people

**Social Exclusion:**
- remoteness, poverty, rural mobility, accessibility

**Equity:**
- Public Transport supply, economic assessments based on case studies

G.5 – Transport for Tourism, Mass Events and Emerging Policy Issues  10 papers

**Mass Events:**
- travel demand related to sports mega events (Olympic Games, etc.)

**Tourism:**
- impacts due to High Speed; mobility, land use and tourism
G.6 – Transport and Security

7 papers

Security: mobility management in case of natural disasters/extreme weather;

Missing Research/Gaps

- major interest for “sustainability” issues needed
- less emphasis on case studies, more on generalized trends, more research needed on theorizations (broader perspectives)
- more focus on emerging countries
- more assessments based on socio-economic studies (especially for gender issues, non motorized modes)
- “Security”: still a niche field of study

... and so many others ...
TA H: Transport in Developing Countries

Topic Area Manager: Antti Talvitie

Session Tracks, Number of Oral + Poster Papers, and Session Track Organizers:

H1  Institution building; Decentralization; HR  8+0 Papers (30)  Tengiz Gogelia
H2  Urban transport and Traffic Mgmt                  17+3 Papers (60)  Kazuaki Miyamoto
H3  Planning and evaluation                                      9+5 Papers (47) Binyam Reja
H4  Performance based contracting                        5+0 Papers (15) Konsta Sirvio
H5  Informal transport; Other                                   13+4 Papers (51) Aaron Golub

TA H: Total of 64 papers, including 12 posters were presented.
However, 203 papers and posters in TA H were reviewed and accepted. (Shown in red font)
Of these, 72 were submitted for review.

Important Issue:  Many authors from the developing countries do not have the resources to attend the WCTRS conference and present their papers
TA H: Transport in Developing Countries

H.1 – Institution building, Decentralization, HR
Organization Analysis, Deregulation
Transport and development

H.2 – Urban Transport and Traffic Mgmt (SIG7)
Transport Planning
Travel Demand and Projects
Travel Behavior
BRT, Paratransit and Driver Behavior

9 papers
20 papers
SIG 7
Special Interest Group on Urban Transport in Developing Countries
A joint activity of WCTRS and CODATU
One of the original SIGs in WCTRS since Yokohama Conference in 1989, established by Professor Michel Frybourg

Website
http://www.yc.tcu.ac.jp/~sig7/

Facebook
https://www.facebook.com/wctrssig7
TA H: Transport in Developing Countries

H3 – Planning and evaluation  14 papers
Modeling and Simulation in Evaluation
Access, Modeling, Megacities
Financial Issues in Evaluation

H4 – Performance-based Contracting, Performance Indicators  5 papers
Performance based Evaluation

H5 – Informal Transport, Other Issues  12 papers
Rural Transport Issues
Transport Policy in Developing Countries
Social and Ethical Issues in Transport in Developing Countries
Research Questions: Wide range of issues were researched

Market areas, Location of development,
Regulation and deregulation
Planning, Access to transport, Mobility, Travel demand and Travel behavior
Transport networks, Simulation, Urban form, Megacities, the Environment
Financing, Performance indicators
BRT, Paratransit, Informal transport, Motorcycle transport, Rural transport
Transport policy, Social and ethical issues

Contents

Case studies
Analysis Tool
Concept
TA H: Transport in Developing Countries

**Missing Research**

Institutional change, Accountability

Political economy and its effects and importance in decision-making

Procurement, Corruption, Elite capture

Gender, Equity, Income distribution and its effects

Land Use, Land Use – Transport Interaction, TOD

PPP, Privatization, Value Capture

... More research in all the above topics and new topics ...
WCTR-Y Conference, 14 July

WCTR-Y Chair: Bruno Santos

General summary

Theme “Transport Policy – Varying Research Applications”
   Understand to help the decision making process

1 day, 4 sessions, 11 papers

Very productive
   quality of the work presented
   level of discussion between colleagues
   networking
   being directly involved in WCTRS matters
WCTR-Y Conference, 14 July

Topics discussed

Data analysis techniques to support decision making
- How to convert big datasets into added value information
- Highway management, public transport planning & traffic light control

The accuracy of prediction methods & models
- The misconceptions, illusions and cognitive bias
Topics discussed

**Urban mobility (non-motorized transport)**
- Use of bikes by rail users – detailed accessibility characterization
- Simulation-based optimization for dynamic bike allocation balance

**Transport infrastructure planning and policy**
- Past policies in Hungary - PPPs
- Sustainable road networks planning
- Environmental impacts assessment

**Ethics of low carbon cars**
- Impacts of low carbon vehicle technologies
- Will “Horizon 2020” originate unfair burdens on some social classes?
- Transport policy + socio-economic policies
WCTR-Y Conference, 14 July

Join us!!

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Key Findings and Future Needs

Reports from
Topic Area Managers
and WCTR-Y Chair