

# MetroFreight

Volvo Research and Education Foundation  
Center of Excellence

International Seminar on City Logistics  
July 2016  
Seoul

***Genevieve Giuliano***  
***METRANS Transportation Center***  
***University of Southern California***

- The Volvo Research and Education Foundation FUT program
- The MetroFreight Centre of Excellence
- Highlights

- **Purpose:**
  - Support research and development to achieve sustainable transport systems in cities
- **Network of Centers of Excellence**
  - University based, but including public and private partners
  - Each with specific theme, research agenda
  - Four to five year duration
  - Currently 8 centers in US, South America, Europe, Africa, Asia, Australia

- **Mission:** *Develop solutions for urban freight problems that are collaborative and integrative with larger sustainability goals*
- **Objectives:**
  - Improve state of knowledge on urban freight
  - Collaborative research: academia, industry, government
  - Tests and demonstrations
  - Education and training
  - Multimedia outreach
- **Strategy:** four large metro areas (“mega-cities”)
  - Los Angeles, New York, Paris, Seoul regions

# Consortium Members

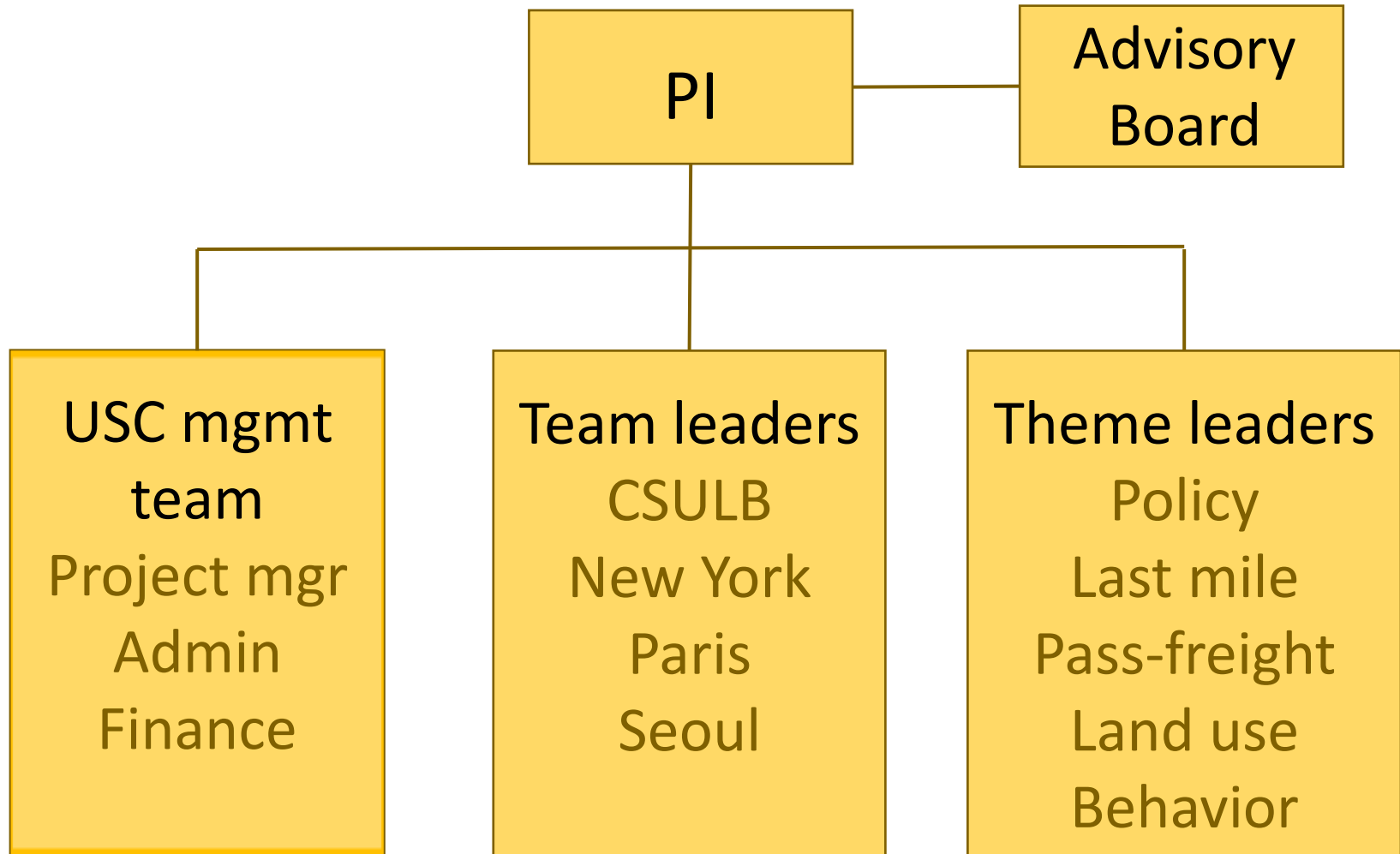
- **METRANS Transportation Center**
  - University of Southern California
  - California State University, Long Beach
- **University Transportation Research Center**
  - City College of New York
  - Columbia University
  - Hofstra University
  - University of Buffalo
- **French Institute of Sciences and Technology in Transport, Development and Networks (IFSTTAR)**
- **Korea Transport Institute (KOTI)**

# Consortium Partners

- **Los Angeles**
  - 15 partners: MPOs, cities, ports, state DOT, transport and trade companies, associations, labor groups
- **New York**
  - City of NY, PANYNJ
- **Paris**
  - City of Paris, local and regional planning agencies, transport agencies
- **Seoul**
  - City of Seoul, Seoul Development Institute, Hyundai, CJ GLS

- Freight flows and their impacts
- Research themes
  - Role of policy from industry perspective
  - Last-mile strategies
  - Improving passenger-freight interactions
  - Land use change dynamics, consequences, and solutions
  - Changing consumer and producer behavior

# MF Organization



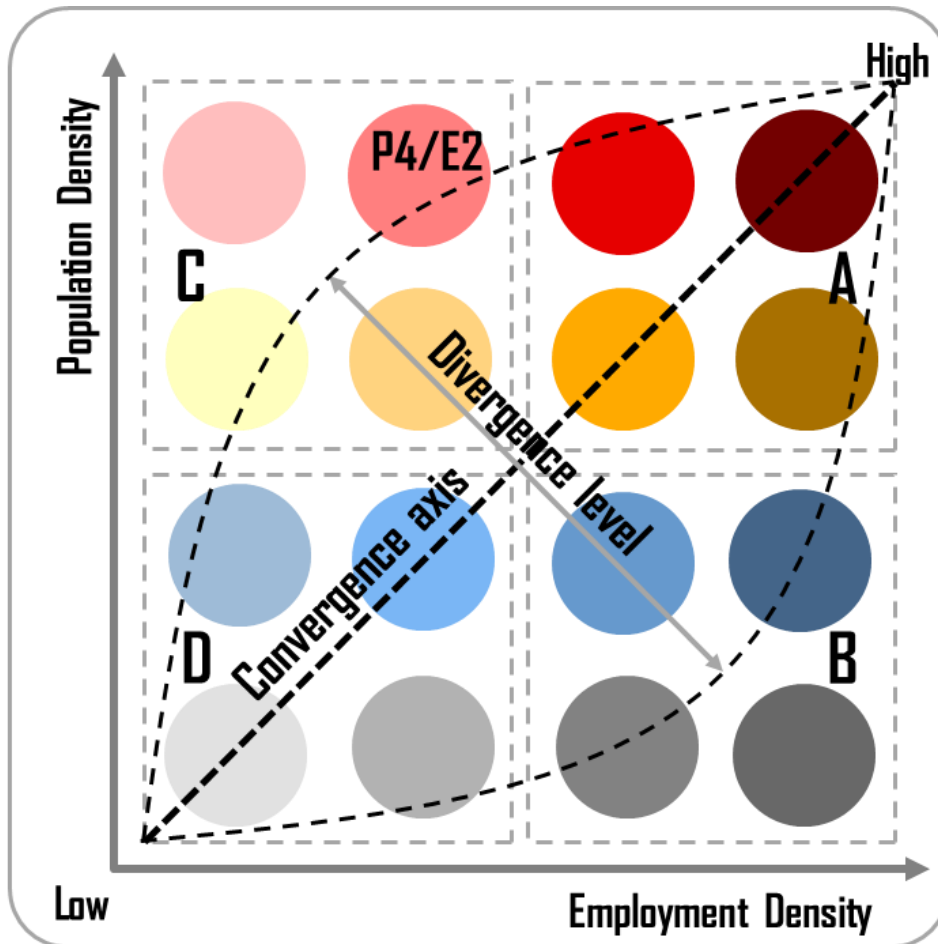
- **Completing Year 3 of operation**
- **Research: 14 projects completed, 22 in progress, 5 to begin in Year 4**
- **Education: curriculum guide, urban freight course, professional training for practitioners and elected officials**
- **Outreach: International Urban Freight Conference, Transport Research Arena, Transportation Research Board, VREF Urban Freight Conference, WCTR**

# Major accomplishments

- **Building knowledge**
  - A global network of urban freight researchers
  - A multidisciplinary network
  - Raised visibility of urban freight as specialized field of research
  - Educating the next generation
- **Influencing practice**
  - Joint university/public agency/private sector projects
  - Researcher participation in policy development
  - Multimedia dissemination
  - Practitioner training

# Selected Highlights

# Freight landscape

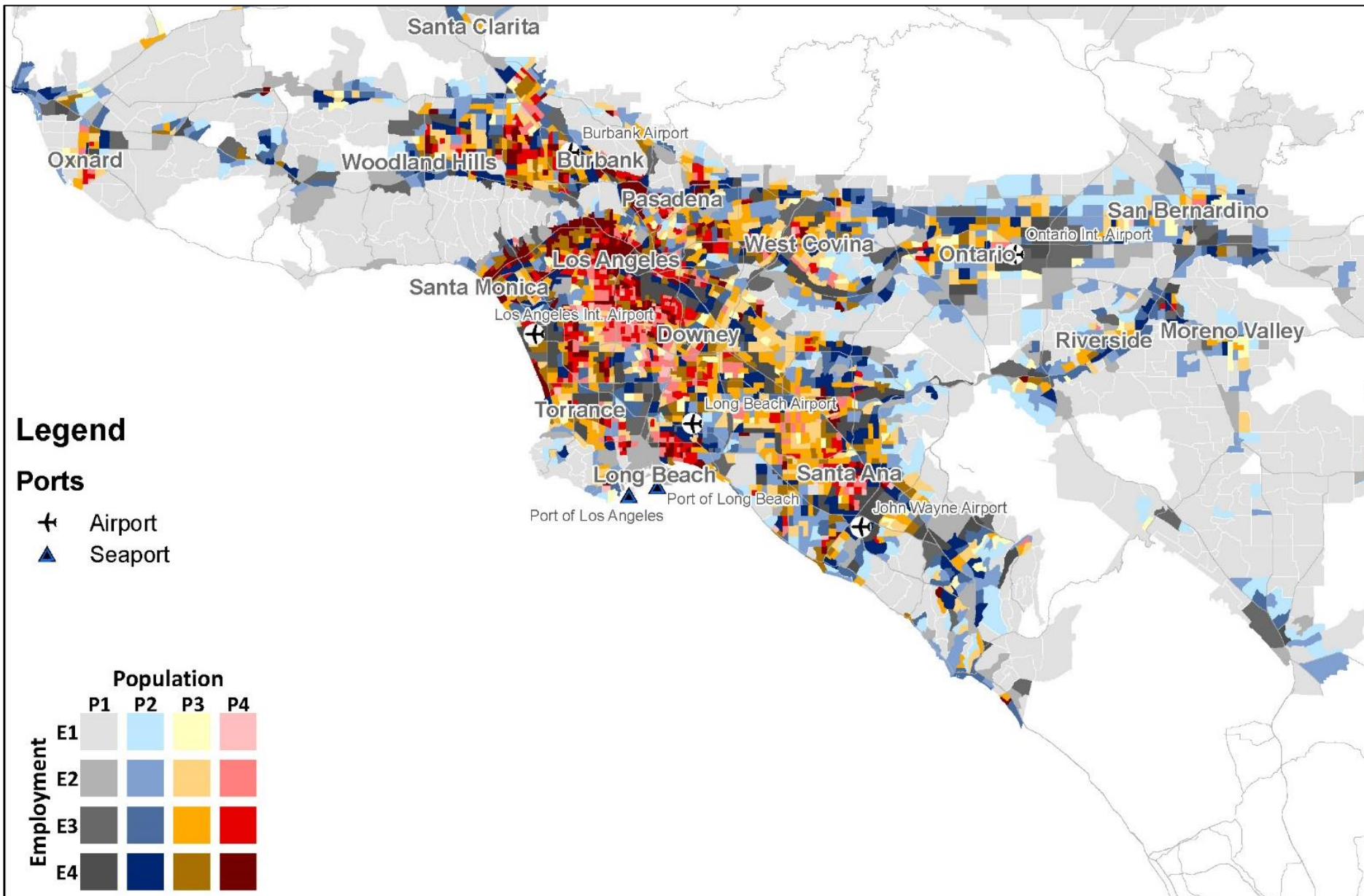


Can we describe city logistics flows from city form?

Freight landscape: patterns of employment and population density representing freight supply, demand, flows

- A (High Density Convergence): Commercial and financial districts.
- B (Employment-based Divergence): Manufacturing and warehousing.
- C (Population-based Divergence): Residential districts.
- D (Low Density Convergence): Suburbia.

# Population and employment density: Los Angeles





**MF**  
**METROFREIGHT**  
 Volvo Center of Excellence

Does non-motorized infrastructure affect freight operations?  
Growing conflicts between trucks and bicyclists  
Impacts on deliveries, congestion

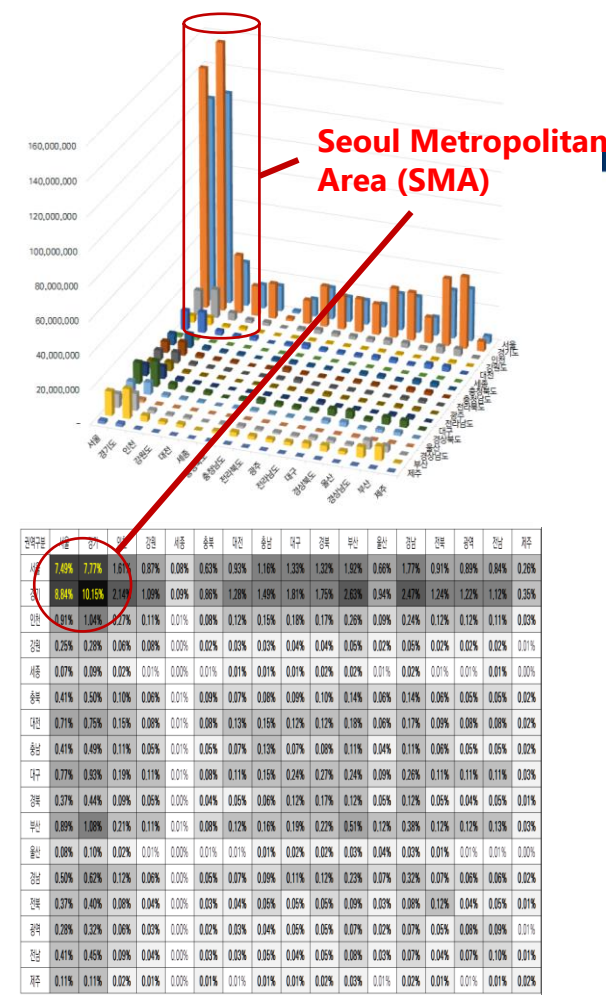


# Impacts of Low Emission Zones on Freight Deliveries

- Analysis of existing Low Emission Zones in London, UK, Berlin, Germany, and Gothenburg, Sweden
- Impacts on urban freight: high rates of compliance, difficulties for small freight companies and reduction in total number of freight companies, no delivery price increase, same quality of service for deliveries
- The research contributed to the design of the new Paris Low Emission Zone (Sept 2015)



# Characteristics of parcel freight flows in Seoul



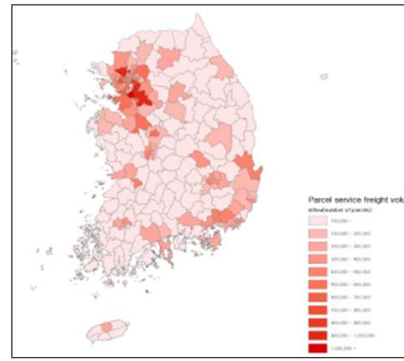
< interregional flows of parcel freight in Korea >

## Seoul is the Hotspot

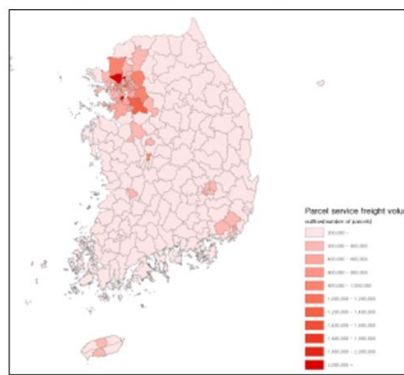
- toward Seoul accounts for 24.22%, from Seoul 30.3%
- especially interacts actively with its vicinity (Seoul Metropolitan Area)
- Flows within the City of Seoul occupy 40.28% of the total as of 2012

## Variations within the city of Seoul

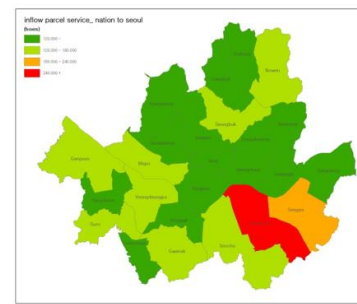
- Gangnam is the most attractive
- Yongsan is the most productive



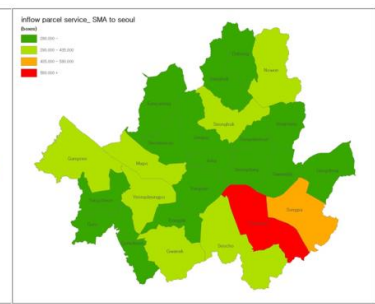
< parcel freight inflows by district >



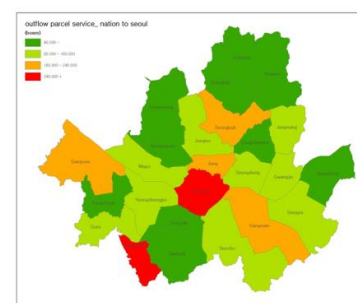
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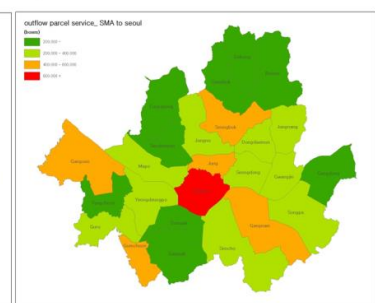
< parcel inflows of Seoul from others >



< parcel inflows of Seoul from SMA >



< parcel outflows of Seoul to others >



< parcel outflows of Seoul to SMA >

# Practitioner training

Paris, December 14-15, 2015

