Panel discussion

Business Advisory Committee Meeting
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A research perspective on new tools to facilitate crowd sourced package delivery

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Trends & Challenges for urban delivery

- Consumer
- Ecological
- Economic
- Demographic
- Regulation
- Technology

- Behavior
- Information flow
- Product flow
Trends & Challenges for urban delivery

**Behavior**
- Speedy e-tailer delivery
- Multiple channels

**Consumer**
- E-commerce B2C 1.9 trl
- E-logistics ‘logsumer’

**Economic**
- Sharing economy
  - Collaborative consumption
  - Collaborative business

**Ecological**
- Quality of life
  - Competing objectives

**Demographic**
- 54% urban, 12% mega-cities

**Regulation**
- Insurance
  - Regulate new technology/models

**Technology**
- Real time big data + analytics
- Automotive tech advances
- UAV, IoT for freight

**Product flow**

**Information flow**
Research: Innovative pick-ups

Network of pickup points

**Attended/unattended** – mitigate home-delivery uncertainty
- Mix & location (stations – lockers)
- Acceptance high in Europe, unclear U.S

**Roaming** – car trunk delivery
- Non-fixed delivery, roaming location for vehicle routing

**E-box**
DHL PackStation
Locker bank

Behavior
Information flow
Product flow

Economic
Technology
Consumer
Research: Overlapping flows

People/Freight combination

Spare capacity in transit – integrate networks to meet needs with fewer vehicles
  - Transit carry parcels
  - Multimodal – simultaneous?

Siemens EU-CIVITAS

Behavior

Information flow

Product flow
Research: Cooperation & New modes

**Cooperation**
- Vertical, partners in chain
- Horizontal, same level
- Issue: pain and gain sharing

**New modes**
- By drone
- New vehicle types
- Multimodal chains

**Amazon**
- **Matternet ONE**

**Economic**

**Regulation**

**Technology**

**FQP’s**

- Behavior
- Information flow
- Product flow
Research: Matching delivery - carrier

Dynamic delivery systems

**Same-day dynamically arriving** occasional carrier
- Optimal matching?

**Crowdshipping** – customer, traveller becomes occasional carrier
- Operations (dynamic routing)
- Behavior of carrier, shipper, receiver
- Business models, anticipating order and driver location

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**Economic**

**Regulation**

**Technology**

**Consumer**

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**Walmart Roadie**

**Behavior**

**Information flow**

**Product flow**
Modelling and optimizing a new system – interdisciplinary challenge

PFI:BIC - Smart CROWdsourced Urban Delivery (CROUD)

**Behavior**
New agents: needs, preferences, aspirations?
Stathopoulos (CEE-NU)

**Economics**
Design pricing, Bidding, Incentives
Schummer (Kellog-NU)

**Computation**
Predictive analytics, Big data analysis, Integrated system
Wolfson (Comp-UIC)

**Operations**
City-logistics routing, collaborative delivery, consolidation / splitting
Nie (CEE-NU), Lin (UIC)

**Legal**
Insurance, labor

Crowd-shipping