The current state of mobility in Europe

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Scope of 4-hour door-to-door

• Which journeys are we interested in?
  – Passenger journeys (only), i.e. DATASET2050 puts the passenger at the centre
  – Passengers with an air segment (even if small cf. other segments)
  – Air segment:
    ✓ commercial air transport
    ✗ excluding private aircraft/PAVs (if the only air transport mode)
Scope of 4-hour door-to-door

- Geographic coverage?
  - Journeys within 32 European countries:
  - EU-28
  - EFTA (Iceland, Liechtenstein, Norway and Switzerland)
  - Schengen Agreement unchanged
  - Excluding EU candidate countries and overseas territories
  - *Pax travelling into this area from a non-EU origin?*
  - *Pax leaving this area for a non-EU origin?*
Scope of 4-hour door-to-door

- Five distinct phases to a trip:
  - Door-to-kerb (D2K): urban multi-modal, public/private transport
  - Kerb-to-gate (K2G): airport check-in, baggage drop-off, security, to boarding
  - Gate-to-gate (G2G): airside from boarding to alighting (incl. connections), flight processes
  - Gate-to-kerb (G2K): airport from alighting to baggage reclaim, immigration, customs
  - Kerb-to-door (K2D): urban multi-modal, public/private transport

Within 4 hours (+ buffers)
Data requirements

• Door-to-door phases = supply
• We also need to consider demand
  – Demographic: macro description of population characteristics
    population, income
  – Passenger demand: estimate of pax demand within Europe
    modal share, traffic flows, access to transport modes
  – Passenger types: to help define archetypical passengers
    journey purpose, passenger itinerary
  – Competing services: development of HSR network and travel
    substitution effects due to future technologies (demand / supply)
    competing modes, competing technology
Data sources

• Multiple sources identified
  – Detailed data or high-level information
  – Datasets *may* be available...but cost prohibits their use

• Data more readily available for ‘current’ scenario
  – Current: quantitative data available
  – Future: qualitative information
Data sources

• Data requirements grouped into broad categories
  – Current and future scenarios considered…
## Data sources

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Data sources

• Demographic data – good range of sources
  – Published data
  – Forecasts available
Data sources

- OECD.Stat
- The World Bank
- European Commission/Eurostat

Demographic
- Population and area
- Education statistics
- Information society statistics
- Income and living conditions
- Labour market
- Urbanisation

SOURCE: EUROPEAN COMMISSION.

Economic development
- Source: EBRD (2007)
- Population
- Education
- Urban population
- Labour market
- Business environment
- Rural population
- Internet and mobile phones
- Migration and refugees

Personalised mobility
- Source: Eurostat (2015)
- Population
- Labour market
- Migration
- Economic indicators and trends
- Source: Eurostat, OECD, EBRD, EIB, World Bank

European mobility development
- Source: Eurostat (2015)
- European air traffic
- Transport and mobility
- Economic development
  - Source: Eurocontrol, EIB
Data sources

- Kerb-to-gate / gate-to-kerb data – limited sources
  - Specific airports data / reports
  - No known forecasts
Data sources
Mobility: how far are we from the target?

- Data review process complete
- Next step: deciding on requirements as inputs for the model
- Part of this process is carried out through this workshop!
- First data analyses: examples showing how far away from the 4-hour door-to-door target we are
  - Using optimistic and less optimistic scenarios
One leg travel time

(from 2010 DDR data)
One leg travel time

(from 2010 DDR data, one month of data)
Taxi travel time

(from 2015 taxi data for NY, USA)
(Very) optimistic travel time without airport

(from taxi and DDR data)
(Very) optimistic total travel times

(from taxi and DDR data)
(Slightly more) realistic multi-legs travel times

(from passenger data plus taxi data)
Achievable?

Not taken into account:
- Buffers
- Other means of transportation to airport
- Incidents etc.

There is a lot to do!

Good news:
- There is a lot to improve in each leg,
- There is a lot to improve at the interface of each leg.
- EU is shrinking, so distances are shorter 😊!
Buffers and uncertainty
Buffers and uncertainty
Buffers and uncertainty
Buffers and uncertainty
Buffers and supply
Buffers and demand

![Graph showing the relationship between buffer and magnitude of loss.](image-url)
Conclusion

- Buffers come from the reaction to uncertainty
- Buffers depend on the demand side (utility)
- Buffers depend on the supply side (uncertainty)

Different sources, different reactions:
- Uncertainty of passengers
- Uncertainty of airlines
- Uncertainty of airports
- ...

Problem of data sharing, data acquisition, etc.