On-line tool for the assessment of sustainable urban transport policies

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European cities challenges

• High proportion of economic activity that takes place in urban areas (i.e. 85% of EU GDP)

• 68% of EU citizens live in urban areas

• Predicted to rise to 80% by 2030

• Road congestion is often located in and around urban areas and costs nearly €100 billion every year (i.e. 1% of the EU's GDP)

• Urban areas are particularly exposed to the external costs of transport with higher levels of air and noise pollutions

• Urban areas are below average in reducing road fatalities
Europeans views on urban mobility

• More than half of Europeans (56%) believe that city authorities should be the main actors responsible for reducing traffic in cities.

• Slightly less than one third of respondents (32%) believe that citizens themselves should be mainly responsible.

• More than half of Europeans believe that better public transport (56%) and lower prices for public transport (59%), would be the best ways to improve urban travel.

• Respondents’ views on how to improve urban travel vary notably across EU Member States.

• Respondents views on how to improve urban travel vary notably across different city sizes.

Source: ATTITUDES OF EUROPEANS TOWARDS URBAN MOBILITY
Special Eurobarometer 406 – December 2013

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Europeans views on urban mobility

• What about the future?

QD5. In the future, do you think the traffic situation within cities will improve, stay the same or get worse?

- Total 'Improve': 4%
- Total 'Get worse': 24%
- Will stay the same: 35%
- Don't know: 37%

Source: ATTITUDES OF EUROPEANS TOWARDS URBAN MOBILITY Special Eurobarometer 406 – December 2013
Actions for urban mobility

• 2011 Transport White Paper sets ambitious targets for urban mobility (i.e. halve the use of conventional fuelled vehicles, move to zero road fatalities, carbon-free logistics etc.)

• These targets cannot be met autonomously as a result of technology development or market forces

• Consistent medium and long term transport strategies are to be developed at city level to ensure that objectives are met

• Traditional transport modelling tools requires huge amount of data and specific modelling skills that might be not available in all European cities

• Very well suited for assessing in detail the impacts of transport policies.

• High level assessment of alternative strategies might prove to be extremely resource consuming
European Urban Transport Roadmaps 2030

Project launched by DG MOVE to:

• Catalyse action on developing sustainable urban mobility across Europe
• Ensure urban transport objectives of 2011 Transport White Paper can be realised
• Facilitate practical action through development and dissemination of robust, easy-to-use tools and guidance

Key features:

• Free, on-line, policy support tool available at the end of 2015
• Five illustrative policy roadmaps
• Stakeholder engagement key

Duration:

• 2014 - 2017
Web-based policy support tool

- High level assessment tool
- To allow cities to explore different transport policy scenarios up to 2030
- Adaptable to different city circumstances (focus on smaller / medium sized cities in Europe, up to 1 million inh.)
- All urban transport modes covered
- The ease of use of the tool is integral to its success and outputs will be visually attractive
- Limited data requirements and no modelling experience required
- Guidance provided – tool tips and user guides
- Available in 10 European languages

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Structure of the tool

Four main elements:

• City type selection
• Policy selection
• Calculation framework
• Tool outputs
City type selection and customization

### Advanced Settings

**Sociodemographic**

- Population trend:
  - Stagnation: growth rate of 0% per year

- Sprawling trend:
  - No sprawl

- Average income level:
  - Medium average income per capita

### Urban Transport Roadmaps

**City Wizard**

1. **City type**
   - Country: Belgium
   - City type:
     - Large city monocentric
     - Small city (<100,000 inh.)
     - Small city with large historical cores
     - Medium city (100,000 - 500,000 inh.)
     - Large city polycentric
   - Population size: 750000

2. **City customisation**
   - Public transport use:
     - Public transport is extensively used
     - Bicycle use:
       - Bicycles are used
     - Motorcycle use:
       - Motorcycles are used

**Exogenous conditions**

- Traffic
- Parking
- Public transport and bicycle
- Vehicle fleets

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## City type advanced customization

### Advanced Settings

**Sociodemographic**

- **Mode split trend**
  - Car share growth

- **Share of freight vehicles with respect to cars**
  - 8%

- **Share of freight vehicles trend**
  - 0.1%

**Traffic**

- **Electric refuelling stations at the base year**
  - Electric fuelling stations do not exist or are negligible

**Parking**

**Public transport and bicycle**

**Vehicle fleets**

**Exogenous conditions**

### Car fleet composition by fuel type

- **GASOLINE** 52.869352%
- **DIESEL** 42.1777397%
- **CNG** 1.25617419%
- **LPG** 3.1796792%
- **HYBRID ELECTRIC** 0.0222932%
- **BATTERY ELECTRIC** 0.0046326%
- **FUEL CELLS** 0.0001616%

### Car sharing type

- **Round system (car must be returned to specific stations)**
- **One-way system (car can be collected and returned to any points in the city)**

### Bus fleet composition by fuel type

- **DIESEL** 98.2%
- **CNG** 1.7%
- **BATTERY ELECTRIC** 0%
- **HYBRID ELECTRIC** 0.1%

### Car sharing subscribers at the base year (number of subscribers)

- 0

### Car sharing fixed cost at the base year (€/year)

- 80

### Car sharing cost at the base year (€/hour)

- 15

### Average time to pick up a vehicle of car sharing service at the base year (minutes)

- 10
Policy selection
Policy customization

1. BIKE SHARING
   - PRIMARY SETTINGS
     - Initial year of the measure: 2016
     - Bike share annual cost: 2800
     - Implementation cost: 2800
     - Operation cost: 0
   - ADVANCED SETTINGS
     - Input variables affecting the bike mode share
       - Bike share cost: 40
       - Bike share coverage: 0.3
   - Elasticities of impact on bike mode share
     - Bike sharing cost: 1
     - Bike sharing coverage: 1
     - Cycling reserved lanes: 1

2. CAR SHARING
   - PRIMARY SETTINGS
     - Initial year of measure: 2018
     - Car sharing fixed tariff (euro/year): 20
     - Car sharing variable tariff (euro/hour): 15
     - Average time to pick up a vehicle of car sharing service (minutes): 5
   - SECONDARY SETTINGS
     - Car sharing operating cost (euro/car): 1000
   - ADVANCED SETTINGS
     - Elasticities of impact on PT mode share
       - Bus/Tram implementation cost
         - Bus: €2000
         - Tram: €580000
         - Frequency: 270000

3. BUS/TRAM NETWORK
   - PRIMARY SETTINGS
     - Initial year of the measure: 2015
     - Mode selection: 1
   - Input variables affecting the PT mode share
     - AFFMODE: 1
     - SHARE BUS NETWORK FREQUENCY: 2000
     - BUS NETWORK EXTENSION: 6
   - Modes affected by mode shift on PT: 1
   - Bus/Tram implementation cost
     - Bus: €2000
     - Tram: €580000
     - Frequency: 270000
   - ADVANCED SETTINGS
     - Elasticities of impact on PT mode share
       - Bus frequency: 1
       - Bus network network extension: 1

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Calculation framework

Policy modules

- Demand management
- Green fleets
- Infrastructures investments
- Pricing and financial incentives
- Traffic management and control

Transport module

- Incoming passenger demand
- Passenger transport demand
- Freight transport demand

Emissions module

- Energy consumption
- Transport emissions
- Road vehicle fleet

Output indicators

- Transport output
- Economy output
- Environment and Safety output
Tools output

- Motorisation rate
- Mode Split
- Average car speed in peak / off-peak hours
- Average bus speed in peak / off-peak hours
- Average distance per trip
- Share of freight traffic in peak / off-peak hours
- Average occupancy factors of PT modes
- Penetration of alternatively fuelled car vehicles
- Penetration of alternatively fuelled bus vehicle
- Vehicles-km by car conventional vehicles
- CO2 / PM / CO / NOx / VOC emissions (tonnes)
- CO2 / PM / CO / NOx / VOC cumulated emissions (tonnes)
- Transport expenditure per individual
- Value of travelled time per individual (1000 Euro/year)
- Transport expenditure of public administration (1000 Euro/year)
- Total consumption by fuel type
- Total passenger fuel consumption by mode
- Total truck fuel consumption
- Total accidents by severity
- Fatalities per 100,000 inhabitants

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Stakeholders engagement and next steps

Stakeholders engagement
• Gather input and views, take account of specific needs and requirements and enable cities to take an active role in testing and developing of tool
• Stakeholder workshops in June 2014 and in June 2015

Beta version currently being tested by the cities of
• Gothenburg (SE)
• Zagreb (HR)
• Alba Iulia (RO)
• Burgas (BG)
• Bremen (DE)
• Monza (IT)

Next steps
• Finalization of the tool by end of 2015
• Launch webinars covering EU Member States during 2016
• Final conference at the end of 2017
Thanks for your attention

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