POLIS – 29th November 2011 – BRUSSELS

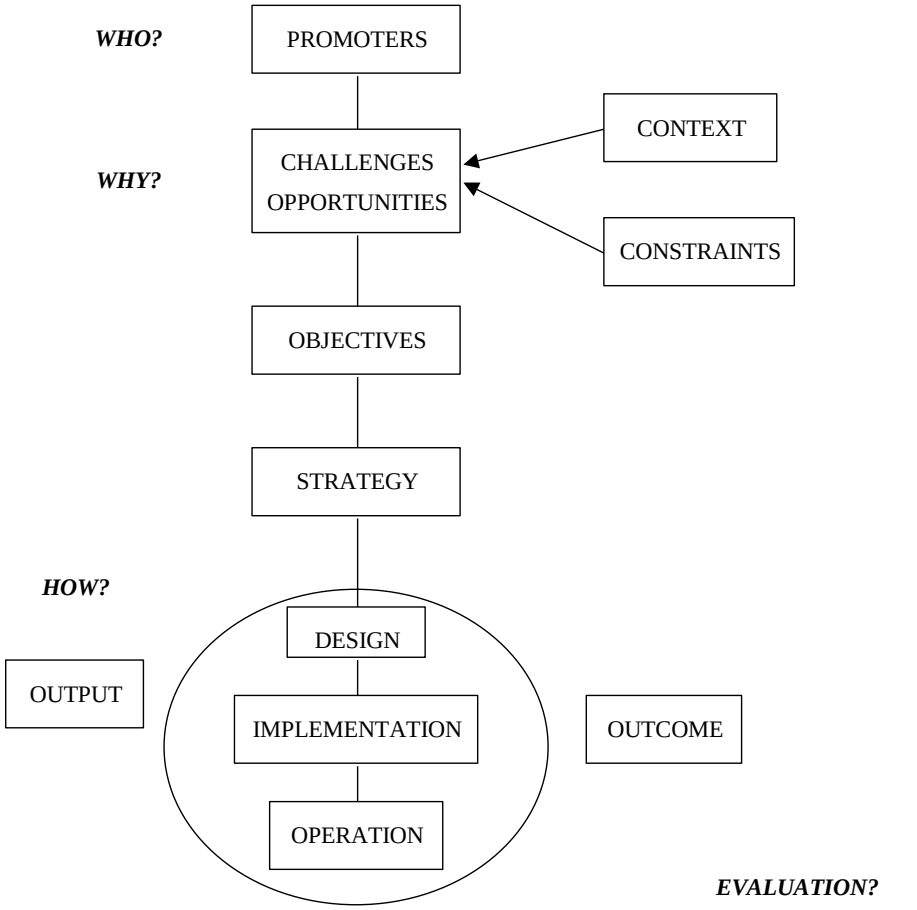
Findings: Socio-economical and networking issues

Odile HEDDEBAUT IFSTTAR-DEST

WG4: Reminding of the main focus from MOU

- the implementation conditions of BHLS concept systems : success, overcoming difficulties or failures. The group will deal with the link with transport / urban planning,
- the socio economic assessments of BHLS. As well as the impact on the transport system (modal transfer), the group will deal with the external effects including local economics, housing, quality of life, with bearing in mind what happens for tramway,
- the image and the place of the BHLS in the public transport network. It will try to understand how the users and the population appropriate BHLS systems (link with the whole design),
- public participation and dialogue methods elaborated in order to program and operate such bus systems, with a focus on conflict solving with the neighbourhoods.

Urban and political context



WHO? Mainly public initiative

- **State Ministry: 1** *(Madrid)*
- **Regional authority: 3** *(Amsterdam, Castellon, Enschede)*
- **Municipal or local Authority: 4** *(Lorient, Brescia, Dublin, Gothenburg)*
- **Transport Authority: 6** *(Stockholm, Hamburg, Jönkönping, Manchester, Nantes, Rouen)*
- **Public Mixed Level: 2** *(Utrecht, Zurich)*
- **Public Transport Operator: 1** *(Prague)*
- **Transport operator alone or with public: 3** *(Oberhausen, Paris, Athens)*

Source: WG4 enquiry 20 answers /35

WHY? A lot of Primary objectives assigned to BHLS

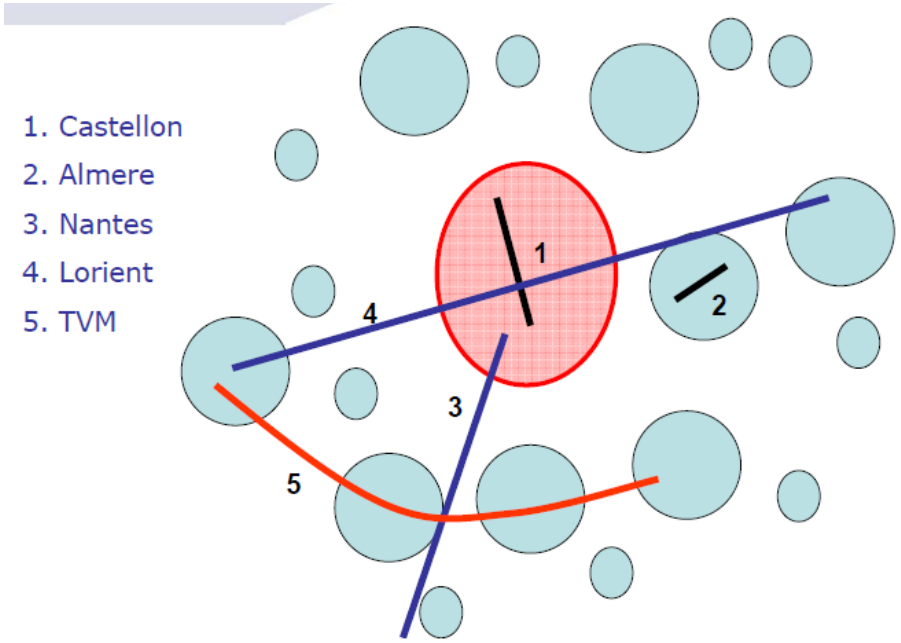
- Modal shift (car → PT): 6
- Faster public transport: 5
- Accessibility: 4 (comfort, easy to understand, quality of life) : *(the user point of view)*
- Acceptance of bus system and increase of use: 2
- Increase efficiency: 5 *(frequency, regularity, quality: commercial speed, punctuality)*
- Planning transport structuring PT: 3
- Decrease PT costs: 3
- Decrease of Green house gas effect: 2
- Increase capacity: 1

Main barriers that have been overcome

- To obtain strong willingness to improve the PT system using BHLS to complement or be the backbone of the network,
- Possibility to convert BHLS into tram,
- To take place and space from cars,
- Parking policy if it exists affordable parking in city centres, low fines,
- Car ownership rates,
- Public consultation and acceptance of bus based systems,
- How to ensure quality of service,
- Increase of BHLS occupancy (capacity),
- Provide sustainable transport if there is an increase of inhabitants (maintaining car use),
- Costs of projects,
- Progressive step by step possibility of implementation
- Increase occupancy rate of cars when HOV.

Urban context:

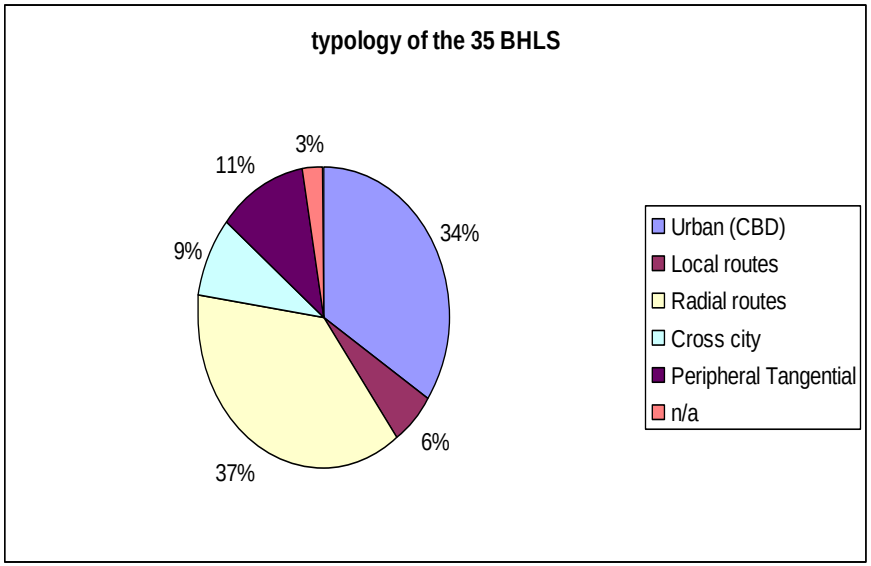
Concept for a typology of the bus based network



1 - Urban (CBD) routes: *Routes operating within the core urban area*
2 - Local routes: *Routes operating locally in the inner or outer suburbs, including feeder routes*
3 - Radial routes: *Routes connecting suburbs or the hinterland with the centre of the urban area*
4 - Cross-city routes: *Routes connecting different parts of the urban/suburban area via the centre*
5 - Peripheral/tangential routes: *Routes connecting suburban areas without entering the centre*

Source: COST TU COST BHLS

European BHLS Typology



3- Radial routes: 37%

the Grenoble line, the Dublin Malahide QBC, the Hamburg Metrobus, Oberhausen, Essen, Purmered, Twente line, Athens airport line, Barcelona, Madrid bus VAO lines, Lund Lundalaken and the Zurich line

1- Urban: 34%

Nantes busway, Lisbon Junqueria line, Utrecht, Kent Fastrack, Prague line Bucharest, lasi, Brescia, Prato Madrid line 27 Castellón and Jönköping Citybussarna.

5- Peripheral/Tangent: 11%

Paris TVM, Amsterdam Zuidtengent, Helsknki Jokeri line and the Cambridge line.

Reasons for a hierarchy of the network

- To make the bus network clear, readable
- To tackle congestion and to contribute to solve environmental issues
- To prioritize infrastructure investment, according to the potential capacity (A higher capacity justifies a higher investment)
- To concentrate the demand in order to optimize the loading rate within the whole bus network (trips per km-operated)
- To increase the cost coverage (some weak bus lines can be then suppressed)
- To define distinct products within the network linked with the primary objectives

BHLS: Main findings

- No need to change PT contract or legislation,
- No major traffic restructuration,
- Bus identification: 17 yes to be more visible and 18 no to offer the same buses to users (low costs)
- BHLS route length
- < 5 km: 4
- 5-10 km: 6
- 10-20 km: 9
- 20-30 km: 5
- > 30 km: 8 (network effect: 5 Brescia, Prato, Jönköping, Stockholm, Twente)

BHLS Speed

- All BHLS have faster speed than normal buses:
- - In many cases, BHLS offers improved journey time and operating speed in the range of 14,8 km/h to of 27 km/h **when operating in towns.**
- - < 15 km/h: 5 systems; 15-20 km/h: 13 systems; 20-30 km/h: 10 systems; > 30 km/h: 4 systems (including Cambridge guided BHLS with a commercial speed of 60 kilometres per hour)
- Higher speeds are achieved on dedicated busway (Amsterdam, Cambridge) or motorway facilities (Madrid).
- - ln a few cases there has been little improvement in speed/time, but big improvement in both re-liability and variance in journey times.

BHLS Speed Change

- - Speed has changed for 13 BHLS systems of our sample.
- This change is qualified as
- Major for 1 systems (Dublin);
- Significant for 6 systems (Paris, Oberhausen, Amsterdam, Leeds, Jönköping and Helsinki)
- and Moderate for 5 systems (Ebbsfleet Kent, Stockholm, Gothenburg, Rouen, Nantes).

Impact on Costs

- The infrastructure costs have extremely high variation. The range is from €100,000 to €15 million per kilometre:
- - €0,1million per kilometre for those with minimal investments for dedicated lane (e.g. Hamburg, Jönköping), to €15 million per kilometres when there is a guidance lane (like in Oberhausen and Castellón), or the construction of a segregated dedicated line (as in Utrecht, Nantes, Paris, Lorient or Amsterdam). These BHLS systems have necessitated civil works such the construction of bridges or viaducts, thus raising the capital investment required.

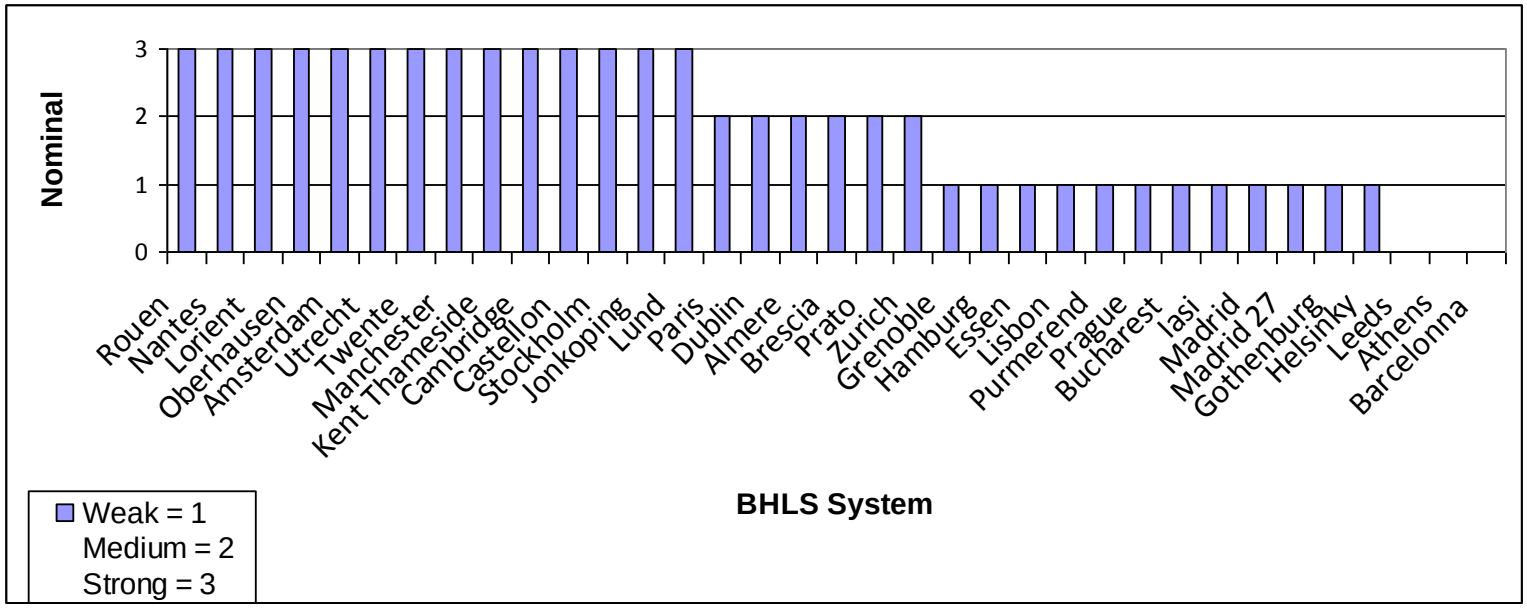
BHLS Ridership

- Ridership: all BHLS have increased (15% to 100%) It should be noted that this level of growth is typically achieved over a number of years, as the systems become established and mature. The increase per year is in the range of +3% to +20% (analysing one BHLS line only in a corridor).
- BHLS system daily ridership spans c. 5,000 to 66,000 passengers/day (Paris TVM). These data are for individual corridors, and may include multiple routes/lines on the same alignment. We note that this matches or exceeds the ridership of many tramway and North American BRT systems.
- - Number of BHLS in this range: < 10,000 = 5 systems ; 10-20,000 = 10 systems ; 20-30,000 = 7 systems ; > 30,000 = 6 systems.

BHLS and their role in urban space enhancement

54% of the BHLS have:
Strong increase (34%):
Rouen, Nantes, Amsterdam, Twente, Kent Fastrack, Lorient, Oberhausen, Utrecht, Cambridge, Castellón, Jönköping and Lund

or medium (20%) increase of urban space environment



Sweden
Netherlands
UK
France
Spain

Recommandations

- to plan simultaneously transport investments and development and urban and/or town planning (Lorient, Nantes, Zurich, Lund, Jönköping, Almere, Madrid, etc.);
- require extensive dialogue and engagement with stakeholders;
- selecting the right transit technology and priority concept;
- Some systems are sharing the tramway platform with BHLS (Stockholm, Gothenburg, Oberhausen and Zurich.)

Main BHLS Impacts

- Performance: e.g. service reliability, quality, ridership
- Transportation system: e.g. modal share, total network effectiveness, transport sector energy consumption and emissions
- Urban: e.g. urban and/or space enhancement land use patterns, land values, development, urban economy
- Societal: e.g. access to jobs, social equity, social exclusion
- Economic value: e.g. post-implementation socio-economic CBA, structured impacts analysis