Grant Agreement number: 265392
Project Acronym: **USEmobility**
Project title: Understanding Social behaviour for Eco-friendly multimodal mobility
Funding Scheme: Coordination and Support Action (Supporting)
Project starting date: 01.01.2011
Project duration: 26 months

**Short summary of:**
**Deliverable D2.1.**
*(State-of-the-art assessment)*

Due date of deliverable: 29.04.2011
Completion date of deliverable: 02.05.2011

Lead partner for deliverable: BSL Transportation
Dissemination level: Public
Name of the document: Short summary of Deliverable D2.1. Full report can be downloaded at: www.usemobility.eu
Management Summary

Key Findings

**Theoretical basis**
The knowledge about theoretical models of systems dynamics, social behaviour and consumer behaviour lead to a better understanding of mobility behaviour.

**Meta study**
The meta study of European and national studies of five countries showed a focus on objectively measurable and individual factors, mainly examining small sample sizes on national basis.

**Fostering the potential**
Mobility behaviour can be influenced and thus changed by transportation companies and politics. There is a trend towards multimodality by the younger generation. To foster this potential, decision makers need to consider a bundle of internal and external factors, influencing the mobility decision.

Implication for USEmobility

**Learnings from theory**
The theoretical models provided knowledge about the dynamics and complexity of transportation systems, interference mechanisms, factors influencing the mobility decision and behaviour at different decision processes.

**Need for USEmobility**
USEmobility aims to fill the gap of an European internationally comparable large-sample survey, focusing on social factors and multimodality with the objective of developing target group-specific recommendations for decision makers.

**Recommendations**
USEmobility recommendations need to address two target groups, on the one hand to keep and intensify the use of existent users and on the other hand to get non-users of multimodality into the system. The core of USEmobility measures is a change in multimodal offer characteristics and a change in attitudes, emotions, perception and knowledge of potential customers.
1. **Theoretical Background**
   - Systems Theory
   - Social Behaviour Models
   - Consumer Behaviour Models

2. **Meta Study**
   - Comparison
   - Quantitative Analysis
   - Need for USEmobility

3. **Conclusion**
Systems Theory shows possibilities of influencing the dynamic transportation system.

**DESCRIPTION**

- **System Border**
- **Elements** (e.g. passengers, transport modes)
- **Peripheral System** (e.g. political, legal, economic, social system)

Systems Theory shows that the transportation system is a complex, dynamic, real and open system, which is embedded in a peripheral system. The system can be influenced from outside.

**EVALUATION**

**Options for interference**

**Where?**
Technology, networks, the link characteristics (interfaces), the vehicles, the system operating policies, the organizational policies and the travel or other activity options.

**Impact on?**
Users, Operators, Physical, Functional, Governmental Level

**IMPLICATION FOR USEMOBILITY**

Complex systems are often beyond a linear cause-effect scheme.

Recommended measures need to be adapted to the different countries.
Social Behaviour Models show that rational explanations of mobility behaviour are not sufficient.

### DESCRIPTION

**Rational-Choice Model**
- individual utility maximization
- cost–benefit ratio: costs and time spent

**Low Cost Thesis**
- Attitudes and moral beliefs are especially relevant when perceived 'cost' of a specific behaviour are low
- Mobility behaviour is regarded as a „high cost area“

**Theory of Planned Behaviour**
- Attitudes, social expectations and the perceived difficulty influence the mode choice

**Norm-Activation Model**
- Internal and external factors influence the mode choice
- Considers awareness of problem and its consequences, subjective norm/moral values, perceived difficulty and objective characteristics of the offer

### EVALUATION

**Rational-Choice Model**
- wrong subjective perception of costs
- no applicability of the rational choice approach for leisure-related journeys

**Low Cost Thesis**
- Conflicting studies about the applicability of the low cost thesis for different travel purposes

**Theory of Planned Behaviour**
- Significant influence of attitudes, expectations and the perceived difficulty, especially in uncertain and intransparent situations, which should be included in the USEmobility recommendations

**Norm-Activation Model**
- USEmobility needs to consider both, internal and external factors, focusing on social factors of mobility behaviour
- Objective characteristics and subjective perception need to be considered

### IMPLICATION FOR USEMOBILITY

A strict rational approach, considering only time and costs, towards mobility behaviour is not adequate and other explanations are necessary.
Consumer Behaviour Models emphasize the complexity of the mobility behaviour decision process.

**DESCRIPTION**

Consumer behaviour describes the behaviour of people at the purchase and consumption of economic goods - behavioural approach instead of „homo oeconomicus“

- **S** = Stimuli (marketing-stimuli, environment-stimuli) – can be directly observed
- **O** = Organism (cognitive and activation processes, attitudes as well as predisposed factors such as culture, involvement and reference groups) – can not be directly observed
- **R** = Response (Brand Selection, Point of Purchase, Amount of purchase, Expense) – can not be directly observed

*Shell model* of consumer behaviour distinguishes between psychological, personal, social and cultural determinants

**EVALUATION**

Consumer behaviour models show that within the organism a complex decision process takes place.

Consumer behaviour theory differ between decisions with greater cognitive control (extensive and limited) and decisions with low cognitive control (habitual and impulsive) - dependent on the type of selected product, the purchase situation or other determinants, such as the risk attitude or the involvement.

The public transport sector could learn a lot from other industries (e.g. automotive industry) where the model is already examined very well and where specific target customers are determined.

**IMPLICATION FOR USEMOBILITY**

Psychological, personal, social and cultural determinants need to be considered when developing recommendations influencing mobility behaviour.

There are different types of mobility decisions, dependent on the travel purpose (work, leisure). The measures need to be adapted. Specific target groups should be addressed with the measures.
Overview

1. Theoretical Background
   - Systems Theory
   - Social Behaviour Models
   - Consumer Behaviour Models

2. Meta Study
   - Comparison
   - Quantitative Analysis
   - Need for USEmobility

3. Conclusion
Meta Study

- Analysis of 70 European and national studies
- In-depth-analysis and comparison of 18 high-relevance studies from Austria (3), Croatia (2), Germany (7), Hungary (2), Belgium (2) and Europe (2), examined by
  - Sample Size
  - Research Method
  - Geographical Range
  - Contents
  - Multimodality focus
  - Group differentiation

…showed the need for USEmobility
The comparison shows that social behaviour has rarely been examined in a large sample with primary research.
The comparison shows that most studies have a national focus and rarely examine multimodality.
The comparison shows that studies differ among socio-demographic groups and focus on objective or offer-related factors.
The **quantitative analysis** of 18 studies identifies objective and personal factors as main drivers for the mode choice.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number of Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household features</td>
<td>1</td>
</tr>
<tr>
<td>Change of the personal situation</td>
<td>2</td>
</tr>
<tr>
<td>Age</td>
<td>2</td>
</tr>
<tr>
<td>Accidents</td>
<td>2</td>
</tr>
<tr>
<td>Parking problems, congestion</td>
<td>4</td>
</tr>
<tr>
<td>Flexibility</td>
<td>2</td>
</tr>
<tr>
<td>Stress</td>
<td>4</td>
</tr>
<tr>
<td>Habits/experiences</td>
<td>3</td>
</tr>
<tr>
<td>Perceived safety/security</td>
<td>3</td>
</tr>
<tr>
<td>Friendliness</td>
<td>3</td>
</tr>
<tr>
<td>Social reputation</td>
<td>3</td>
</tr>
<tr>
<td>Attitudes</td>
<td>4</td>
</tr>
<tr>
<td>Information/knowledge</td>
<td>4</td>
</tr>
<tr>
<td>Physical ability</td>
<td>5</td>
</tr>
<tr>
<td>Comfort</td>
<td>7</td>
</tr>
<tr>
<td>Environment</td>
<td>8</td>
</tr>
<tr>
<td>Car/license availability</td>
<td>6</td>
</tr>
<tr>
<td>Attractiveness of offer</td>
<td>9</td>
</tr>
<tr>
<td>Structural aspects</td>
<td>11</td>
</tr>
<tr>
<td>Costs/Income</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>12</td>
</tr>
</tbody>
</table>
The comparison and the quantitative analysis of the studies showed the need for USEmobility.

**Objective factors and personal situation form a corridor**

Objectively measurable factors such as costs, travel time and infrastructure play an important role when it comes to mobility decisions. Together with the individual situation, that is characterized by car availability, income, employment, household size, mobility restrictions and socio-demographic features, they form a framework or a 'corridor', in which the mobility decision takes place. USEmobility tries to find out what happens within this corridor.

**Consideration of social factors**

Situational factors and social behavioural factors such as attitudes and opinions, experiences, habits and environmental awareness need to be considered, which have been neglected in the past.

**Attitudes as significant factor**

Recent mobility behaviour studies could identify the importance of attitudes and individual aspects for the mode choice, which are not covered by traditional mode choice models such as the rational choice approach. Attitudes showed the highest significance when distinguishing among different mobility groups!
1. Theoretical Background
   - Systems Theory
   - Social Behaviour Models
   - Consumer Behaviour Models

2. Meta Study
   - Comparison
   - Quantitative Analysis
   - Need for USEmobility

3. Conclusion
**Conclusion**

**Trend towards multimodality**

Trends towards an increase in the use of public transport, especially for younger generations, mainly due to environmental concerns and the life in urban centers, show a high potential for an increased multimodal mobility in the future.

**Bundle of Factors**

Internal personal factors (human individual), external personal factors, physical ability, situational factors and offer-related factors can be distinguished when examining mobility behaviour.

**A change towards eco-friendly mobility**

The studies show that changes in mobility behaviour are possible. The results will finally enable policy, transport operators, civil societies, such as passengers’ associations and other decision makers to systemically influence mobility behaviour.

**Possibilities of influencing the system**

There are different possibilities to change the system. Influencing the multimodal offer according to customers’ needs and a change in attitudes, emotions, perception and knowledge of the users are in the focus of USEmobility.
The core of USEmobility recommendations are offer-related and social changes, addressing two target groups:

- **Users of multimodality (frequent or occasional)**
  - Less emigration of passengers out of the system
  - Increase of use of multimodal transport alternatives
  - How to keep users in the system and to make them intensifying their use?

- **Non-Users of multimodality**
  - Change from monomodal to multimodal mobility
  - How to get non-users into the system?

**Possibilities of system interventions**

1. Change in multimodal offer characteristics, corresponding to the desires and demands of the potential customers
2. Change in attitudes, emotions, perception and knowledge of potential customers through changed characteristics of the offer
3. Change in characteristics and communication of the multimodal offer, corresponding to the personal and physical abilities
4. Change in characteristics and communication of the multimodal offer to adapt to possible situational influences
5. Change in communication, legal and lobbyistic activities with the objective of building a better framework for multimodal mobility offer vs. Monomodal mobility offer