BaggageLess – Customers’ needs regarding Baggage logistic systems

Bernhard Rüger, TU Wien
Petra Matzenberger, TU Wien
Volker Benz, TU Wien
Initial position

„As long as the railway system is not able to replace the car boot suitable it will not be striking successful.“
(cit. Univ.Prof. Engel)

Baggage is the main reason why cars are used instead of sustainable modes of mobility. This counts for travels as for daily mobility.
Influence of baggage

Baggage elasticity

<table>
<thead>
<tr>
<th></th>
<th>Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baggage</td>
<td>0.685</td>
</tr>
<tr>
<td>Mobility at destination</td>
<td>0.655</td>
</tr>
<tr>
<td>Travel fare / price</td>
<td>0.630</td>
</tr>
<tr>
<td>Transfer</td>
<td>0.469</td>
</tr>
<tr>
<td>Travel time</td>
<td>0.386</td>
</tr>
</tbody>
</table>

![Graph showing the influence of baggage and other factors on mobility](image)
Influence of baggage

Reasons, why the train is not chosen

- Baggage
- Percentage of hotel guests
- Mobility at destination
- Transfer
- Travel time
- Station at destination
- Station at home

Percentage of hotel guests

- Summer: 64%, 52%, 47%, 41%, 27%, 28%
- Winter: 92%, 77%, 48%, 55%, 51%, 40%

GepäckLoS
Effects by baggage

**Journeys:** The train is often not taken because the baggage transport is felt too uncomfortable (also e.g. for way to airports)

**Daily mobility:** shopping, daily trips, taking along „bits and pieces“ → *car instead of sustainable mobility*
Actual baggage logistic systems

**Journeys:**
- Baggage-Check-In (air travel)
- Rail-Air (baggage check in)
- Checked baggage between rail stations (CH)
- Door-to-door baggage service (home delivery/shops)

**Daily routine:**
- Delivery service (home delivery)
- Pick-up in partner shops, post shops etc.
- Pick-up machine
Problèmes of actual systems

- Unflexible
  - Large time slot
  - Personal presence required
  - Long transport duration
  - Not on weekends

- Expensive
  - Actual systems are more or less „crutches“—therefore uneconomical
Aim of project Gepäcklos

- **Conceptual design** different scenarios (also operation model)
- Definition of **customers needs** and **expectations**
- Definition of **technological** and **logistic challenges**
- Point out **IT-challenges** and solutions
- **Evaluation** of different systems regarding efficiency, customers benefits, feasibility, meaningfulness and general benefits
- Point out **technical challenges**, which are not or hardly realizable at the moment, show scenarious for **future developments**
Operator model

Baggage logistic operator as superordinate One-Stop-Shop

→ like transport association in passenger transport

Logistic operator

Requested hand over

Requested pick-up
Challenges in customer`s & operator`s sphere

- Baggage drop off
  - Address pick up (flat door)
  - Address pick up (house pick up box)
  - Drop off-Terminal
  - Drop off-Partner shop
  - Drop off-station
  - Airport
  - Lockers/Smart box
  - (Online)-shopping etc.

- Operator`s sphere
  - Transport/handling
    - Take over, drop off manuel
    - Take over, drop off automated
    - Different modes of transport / Intermodal transport chain
    - Handling
    - Optimized transport duration etc.

- Baggage return
  - Address drop off (flat door)
  - Address drop off house-drop off box
  - Pick up-Terminal
  - Pick up-Partner shop
  - Pick up-station
  - Airport etc.
Interest on a luggage service

On train journeys

Would you use the described luggage service?

- no
- likely no
- likely yes
- yes

Today vs. in general
Interest on a luggage service

On train journeys – depending on pieces of luggage

Would you have chosen the luggage service at your current journey?
Interest on a luggage service

On train journeys – depending on the travel purpose

Would you have chosen the luggage service at your current journey?

- no
- likely no
- likely yes
- yes

travel purpose

- longer holidays
- business trip (day)
- short getaways
- shopping
- Arbeit/Ausbildung
- business trip (one day)
- private issues
- weekly commuter
- day trip
Interest on a luggage service on train journeys

Higher-than-average interest:

- Persons with hindrance because of their luggage
- Travellers with babies and children (between 1 and 6 years)
- Size and amount of the luggage
- Physical disabilities
- Arriving with the taxi at the train station
Willingness to pay for the service

Willingness to pay on train journeys:
- 38%: have to be included in the ticket price
- 19%: 1-10 EUR
- 11%: 10,01-20 EUR
- 8%: 20,01-35 EUR
- 4%: over 35 EUR

Willingness to pay in the shopping malls and street:
- 30%: nothing
- 20%: under 10 EUR
- 14%: 10 EUR
- 6%: 15 EUR
- 4%: 20 EUR
- 30%: over 20 EUR
Willingness to pay

Which groups had an higher willingness to pay?

• Travellers with a baby or children
• Travellers having bicycles with them
• Travellers with a higher number of large pieces of luggage
• Passengers travelling first class
Needs and demands on train journeys

Delivery directly at the residence door [45%]

- **Problem:** Presence is necessary; destination address is vacant
- **Earliest pickup of the luggage:** max. 6h before the start of the journey; only 25% accepted a pickup the day before
- **Delivery** the same time as the person is arriving; latest: the same day

Delivery at the train station [47%]
Needs and demands on train journeys

Flexible Pickup and delivery

• Chosen time slot (36% would pay extra)
• Size of the time slot: 2h
• Delivery also early in the morning, in the evening and at the weekends
• Technical systems for pickup and delivery (e.g. special boxes and delivery terminals) [50% are interested!]
Conclusion

Luggage is a certain reason to use the car! Surely, there is a well existing potential for luggage services! **But:**

- It has to be very flexible (delivery, pickup)
- The transport of the luggage should be at the same time as the traveller travels.
- The willingness to pay a profitable price is low.
Thank you for your attention!

Questions to: bernhard.rueger@tuwien.ac.at