International Conference on Demand Responsive Transportation: From Dial-A-Ride to Technology Enabled Services
September 26-28, 2016, Breckenridge, Colorado

The RAMSES Platform –
Empowering Rural Community Transport by Low-cost Digital Solutions

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Outline

• Introduction: Mobility services in rural areas
• Need for the RAMSES project
• Pilot region Baden-Württemberg
• Results of the participatory process
• The platform „on-the-go“
• Conclusions
• Challenges ahead
## Alternative mobility services in rural areas

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car-Sharing</td>
<td>300% growth in registered users 2010-2016 (Germany)</td>
</tr>
<tr>
<td>Bike-Sharing</td>
<td>More than 800 systems all over the world</td>
</tr>
<tr>
<td>Ridesharing</td>
<td>At least 16 ridesharing platforms only in Germany</td>
</tr>
<tr>
<td>Community Transport</td>
<td>More than 260 initiatives in Germany. Similar concepts in Netherlands and UK. Either fixed-route scheduled or demand-responsive</td>
</tr>
</tbody>
</table>
Community transport supplements regular public transport

Forms of community transport

<table>
<thead>
<tr>
<th>Form</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed-route, scheduled citizen bus</td>
<td>In areas with no regular public transport, or in off-service hours of regular PT</td>
</tr>
<tr>
<td>Regional ride-sharing platforms</td>
<td>Parallel to public transport in a geographically limited area, intra-rural trips and to next urban centre</td>
</tr>
<tr>
<td>Demand-responsive (with advance reservation)</td>
<td>Supplements regular PT with door-to-door services for riders with mobility impairments, open to all</td>
</tr>
</tbody>
</table>

Characteristics

- Community based services are mostly run by retired volunteers for elderly people → low digital affinity
- Different operational models
- Low digitalization, mostly paper-based planning, organization and monitoring of services
- Digital solutions are often self-made
- Often no budgets, fare fees cover operational costs

Source: hoeri-mit.de
Need for the RAMSES project

Aims:
• Fostering rural mobility by empowering rural mobility providers, especially community transport initiatives → „social innovation“
• Reduce car dependency and improve mobility in an aging society
• Improve quality of life in rural areas

1. Integration:
• Integrate the services and schedules of small scale providers and transit providers on one digital platform, allow seamless interchange
• Improve visibility of these services

2. Digital tools for small scale providers:
• Tools for planning, organizing, operating and monitoring mobility services
• Tools need to be low cost, easy-to-use
Pilot region Baden-Württemberg

- 10.5 million inhabitants
- Relatively high density, equal distribution of large, middle-size and small settlements
- Rail system is the backbone of transit
- High GDP and income levels, regional differences
- Fragmented into 22 tariff regions
- 49 scheduled, fixed-route citizen buses and 12 on-demand services

Source: schwarzwaelder-bote.de
Source: www.buergerbus-bw.de
Developing the platform

Development of the platform in a participatory process
- Transit authority of Baden-Württemberg
- Regional and local transit authorities
- Community transport initiatives
- SMEs, start-ups
- IT developers
- Academia

Project phases:
- Identify requirements of a low-cost, easy-to-use digital toolset
- Develop business and financial models for the final product
- Present beta-version of platform, feedback from service providers

Source: RAMSES project
Results of the participatory process

Requirements towards a digital platform

- Route planning
- Vehicle / fleet management
- Driver management / driver shift management
- Integration with other forms of transport
- Statistics and monitoring
- Dispatching (for DRT)
- Customer database
- Accounting
- Internal and external communications
- Real-time booking (long-term perspective)
- (Support in legal issues)
- (Support in setting up new services, acquire finances etc.)

Source: Dr. Holger Jansen/Projekt Bürgerbusse Rheinland-Pfalz/nexus
Results of the participatory process

• Social interaction is a key motivator in community-based transport
• Reliability, clarity, bindigness, security, delimited responsibilities are crucial. Examples:
  – Bus drivers do not want to be interrupted by mobile communication devices -> smartphone interface less important to date
  – Drivers and passengers want to plan long in advance
• Responsibility in iniatives is often with one person → threat to continuity
• Digital solutions can open up potentials for new collaborations and better use of existing resources
• Low willingness to deal with software and hardware architecture, but volunteer and passenger will have more digital affinity in future
• Community transport, especially demand-driven services, do not yet aim at younger customers

→ A digital platform must support, but may not replace vital functions of community work
The platform „on-the-go“

- „on-the-go“ builds on an advanced multimodal trip planner developed at Berlin University of Technology, and combines it with a dispatching software for DRT, commissioned by Baden-Württemberg transit authority (NVBW)

End-user interface

Provider interface

Source: NVBW / SIVIS GmbH

Source: RAMSES project
The platform „on-the-go“: the end-user interface

Desktop und smartphone application

Source: RAMSES project
The platform „on-the-go“: provider interface

Route definition

Source: RAMSES project
The platform „on-the-go“: provider interface

Dispatching module

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<table>
<thead>
<tr>
<th>Name</th>
<th>Start</th>
<th>From</th>
<th>Destination</th>
<th>To</th>
<th>Fix</th>
<th>Pick up point</th>
<th>Options</th>
<th>Cost</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mrs Winter Gerda</td>
<td>Bahnhofstr 1 75378 BL UH</td>
<td>07:34</td>
<td>Fitness-Stud Magic Gym Bahnhofstr 1 75382 Altengast Reutte 07051/700384</td>
<td>08:45</td>
<td>---</td>
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<td>Mrs Hedwig Bachmann</td>
<td>Cafe Schweigert Kurhausdamm 11 75378 BL</td>
<td>07:40</td>
<td>AOP Badstr. 41 75365 CW Winberg 07051-8062255</td>
<td>08:01</td>
<td>Kindersitz erforderlich, G</td>
<td></td>
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<tr>
<td>Mrs Friedgart Schneider</td>
<td>Volksbank-BL Kurhausdamm 3 75378 BL UL</td>
<td>08:15</td>
<td>Im Zwerneck 5 75378 BL</td>
<td>08:27</td>
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<td>---</td>
<td></td>
<td>€1.00</td>
<td></td>
</tr>
</tbody>
</table>
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Map

16. September 2016

Source: NVBW / SIVIS GmbH
Conclusions

• While ICT for commercial providers has multiple benefits, the deployment of ICT with volunteer initiatives is more complex. → The benefit of ICT solutions for community-based transportation services needs to be closely defined.

• Community transport is still foremost addressing the elderly and mobility impaired. ICT can help to address a different customer base.

• For many community transport initiatives, digital solutions are a first step towards integration and professionalization of operations, and a long-term investment to create a continuous service.
Challenges ahead

- **Product definition and business model development** for the niche segment of community transport in a crowded market (myriad of trip planners, mobility platforms, fleet management software etc.)
- **Bridging the rural-urban divide** of different platforms and providers
- **Linking the concept of Mobility as a service (profit oriented) with community transport and P2P/shared mobility (not for profit)** → “Uber without Uber“?
  - Can there ever be a „mobility guarantee“ in rural areas without the individually owned car? convenient, accessible and seamless, cost-efficient travel from door to door for all?
- **Foster the prosumer model in transportation**, integrate social media
- **Low-density, remote areas: devil’s circle** of economic disadvantage, social marginalization and digital exclusion (Velaga et al. 2012)
CONTACT

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Backup
The platform „on-the-go“: provider interface

Comparing trip request with regular public transport schedule

Source: NVBW / SIVIS GmbH
The platform „on-the-go“: provider interface

Resolution for conflicting trips and merging trips

Source: NVBW / SIVIS GmbH
The platform „on-the-go“: provider interface

Customer database with customer attributes