

Innovative mobility solutions: case study description and analysis

AUTHORS

PATRICK VAN EGMOND (LUXM, MAIN AUTHOR)

JOANNE WIRTZ (LUXM), COSIMO CHIFFI, SIMONE BOSETTI, STEFANO BORGATO (TRT),
ANDRÉ FREITAS, VASCO REIS (TIS), MASSIMO MORAGLIO, TOBIAS KUTTLER, NORMAN
DÖGE (TUB), DELPHINE GRANDSART (EPF), GORADZ MARINIC (IRU)

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Responsible Author(s):	Patrick van Egmond (LUXM)
Responsible Co-Author(s):	Joanne Wirtz (LUXM), Cosimo Chiffi, Simone Bosetti, Stefano Borgato (TRT), André Freitas, Vasco Reis (TIS), Massimo Moraglio, Tobias Kuttler, Norman Döge (TUB), Delphine Grandsart (EPF), Goradz Marinic (IRU)
Reviewer(s):	Dariya Rublova (INTRA), Silvia Maffii (TRT)
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Abstract

Despite the limits of the current public transport systems in EU prioritized areas, such as rural, remote and deprived urban areas, there are several initiatives that give way to new mobility options and innovative solutions, including the use of Information and Communications Technology (ICT) and the involvement of individuals and communities as co-owners and producers.

The Deliverable D3.2 reviews and analyses relevant existing European (and worldwide) initiatives, research results, business cases, and projects in order to identify innovative mobility options and analyse in detail their characteristics.

In particular, the deliverable scrutinizes twenty handpicked transport solutions to understand their accomplishments (and limitations), analyse their business models, original management solutions as well as social and technological innovations.

About HiReach

HiReach aims at addressing the mobility needs of different groups vulnerable to transport poverty and social exclusion like people with temporarily or permanent reduced mobility, children, young and elderly people, women, migrants and ethnic minorities, low income and unemployed, to favour more inclusive and flexible mobility solutions. The project also analyses geographical and spatial elements affecting transport poverty to figure out mobility options that can simultaneously combine the needs of several groups in different target areas like urban-peripheral, peri-urban, rural, and remote or deprived territories.

By combining different attributes of available transport concepts and bottom-up initiatives with new operational schemes and IT applications, HiReach explores viable business models for small scale, modular and easily replicable mobility services that can be provided at affordable prices and/or with minimum subsidies. For the first time, community transport services, informal ridesharing and van pooling, innovative ride-hailing mobility services and on-demand public transport are assessed within the scope of a new collaborative and well-regulated business environment.

The HiReach mechanism for exploring, generating and testing inclusive mobility solutions is based on the creative work of startups and innovative entrepreneurs, but also on social innovation through the direct involvement of different social groups as developers, co-users and co-owners of the proposed solutions. HiReach is working in 6 EU study regions: Counties of Esslingen and Göppingen (Germany), Naxos and Small Cyclades (Greece), Inner Area Southern Salento (Italy), Guarda and Torres Vedras (Portugal), Buzau (Romania), North and South-East Luxembourg.

Disclaimer

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Acronyms and abbreviations

ACRONYM	DEFINITION
AMTU	Association of Catalan municipalities for mobility and urban transport
App	Software application for mobile devices such as smartphones or tablets
BVG	Berliner Verkehrsbetriebe (Transport Services of Berlin)
CPAS	Centre public d'action sociale (Public Social Action Center)
DORV	Dienstleistung und Ortsnahe Rundum Versorgung (Service and local care)
DRT	Demand Responsive Transport
GPS	Global Positioning System
ICT	Information and Communications Technology
KPI	Key Performance Indicator
LAAS	Logistics as a service
MAAS	Mobility as a service
NDOV	National Database of PT
NTA	National Transport Authority
PRM	Persons who are disadvantaged with reduced mobility
PT	Public Transport
PTOs	Public Transit Organisations
TAD	Transport a la Demanda (Demand responsive transport)
WMO	Wet maatschappelijke ondersteuning (Social support law)

Executive summary

Despite the limits of the current public transport systems in EU prioritized areas, such as rural, remote and deprived urban areas, there are several initiatives that give way to **new mobility options and innovative solutions**, including the use of Information and Communications Technology (ICT) and the involvement of individuals and communities as co-owners and producers.

The scope of this deliverable, final result of **Task 3.2** (Analysis of case studies and best practices) within **WP3** (Identification of new mobility options and business models), is to review relevant existing European and worldwide initiatives, research results, business cases and projects to identify innovative mobility options and analyse in detail their characteristics.

Specifically, the deliverable scrutinizes twenty handpicked transport solutions to understand their accomplishments (and limitations), analyse their business models, original management solutions as well as social and technological innovations.

Case studies	
1. Boleia	11. Local Link
2. Bummelbus	12. Locomobile
3. Bürgerbus Aichwald	13. PickMeApp
4. Buurtkar	14. Pink Taxi
5. Dörpsmobil	15. Transport a la Demanda in Catalonia
6. Fairfahrt	16. Taxi Colectivos Beja
7. Fietsmeesters	17. Uber
8. FlexTrafik in Denmark	18. Village House Service Centre
9. GoOpti	19. Welcome to Berlin Ticket
10. GoOV APP	20. ZOOV

The case studies have been selected taking into account **not only successful initiatives, but also less positive experiences**, so that the reasons behind less positive outcomes are understood.

In particular, the mobility options for improved inclusion have been assessed according to **four domains**:

- 1) New organizational and business models including innovative back-office solutions;
- 2) Upgrading of the present transport offer to increase the attractiveness of the offer;
- 3) Enabling technology and interoperability rules based on ICT solutions;
- 4) Integrating new forms of transport services mainly based on sharing economy and community based principles.

While framing the **case studies' selection, different aspects have been considered**: the domain of the case study, the type of service/transport mode, the area where the service operates (classified into urban, peri-urban, and rural environments) and the specific social

groups to which the service is targeted as considered by the HiReach project (people living in rural and deprived areas, migrants and ethnic minorities, people with reduced mobility, people having a low income or who are unemployed, children, elderly people and women).

Each of the twenty case studies has been thoroughly reviewed and multiple aspects related to the mobility service have been deepened. Such aspects include an introductory description of the service, its usage, the key drivers and barriers for its success, the regulatory framework and legislative environment in which the service was born and developed. Understanding the performance of a solution in reducing transport poverty has also been an important element of the analysis, so it was comprehending its business potential. Finally, for each case study, a few similar practices have been found in order to hint at other examples of comparable service elsewhere.

Based on the information gathered from each case study, **a cross-analysis has evaluated the different business models, the original management solutions, the social and technological innovations, and the organizational and operational frameworks.** The outcome of such analysis allows to emphasize the advantages and limitations associated with each mobility solution and to identify the initiatives with the highest potential to be replicated in other regions/countries.

The main **drivers** emerged from the case studies examination include:

- a strong interinstitutional commitment,
- the presence of a well-established and simple organisational schemes,
- the voluntarily commitment of the initiators of an initiative,
- the support (financially or other) from a city, a municipality or even the national government,
- the IT systems, which make the service functioning in a smart and innovative way, and
- a flexible operational model.

On the other hand, the principal **barriers** are:

- convincing people to use different mobility services than public transport or their own car,
- increasing the usage of the service to make it more profitable,
- the difficulty to get permanent funding from a public authority,
- the difficulty to coordinate all the tasks if many stakeholders are involved, and
- the instalment of technology.

As it comes to the case studies' **transferability**, most of them have the potential to be repeated somewhere else provided that they are adapted to the local conditions, including size of administrative area, resources available, culture, etc. Also, in some cases they can be extended to a wider group of users compared to the ones originally targeted.

Implementing an initiative in sparsely populated regions, where public transport doesn't exist or is not efficient, can have a big potential, because people rely on it and there is no big competition, especially if the service is expanded to cover other needs (e.g. school or special needs transport). In addition, permanent funding allows a service to stay competitive and to run a sustainable business. Another important factor is the participatory engagement.

1 Introduction

This chapter has the goal to introduce the purpose and scope of the deliverable, within the workflow of HiReach Work Package 3 (Identification of new mobility options and business models). It also includes the main objectives and presents the methodology used to analyse the case studies and to assess mobility options that provide solutions to cope with transport poverty and inclusion.

1.1 Purpose and scope

HiReach is a three-year EU-funded Horizon 2020 project that aims at eliminating transport poverty by generating new mobility solutions that reach low accessibility social groups and areas.

This deliverable is part of Work Package 3 (WP3) that consists in the “Identification of new mobility options and business models”. This work package has a pivotal role in the HiReach workflow as it embeds the activities of the second step of the project (“Explore”), bridging the first step (“Analyse”, directly linked with WP2 – Analysis of mobility needs and capabilities) with the third and final one (“Develop”, i.e. WP4 – Development of mobility solutions).

In this second step, HiReach is going to explore and critically assess existing innovative organizational and operational frameworks aimed at delivering new mobility solutions; as well as new, efficient, inclusive, affordable and accessible mobility solutions and public transport models.

WP3 began with **Deliverable 3.1**, which analysed and discussed the reasons behind transport exclusion, allowing for a preliminary assessment of the limits and drawbacks of current supply of PT systems and services, in terms of inclusion and accessibility for the targeted social groups. Available mobility options were classified (publicly contracted, market-based, community-based services) and the mobility challenges and limits of the current transport systems were identified.

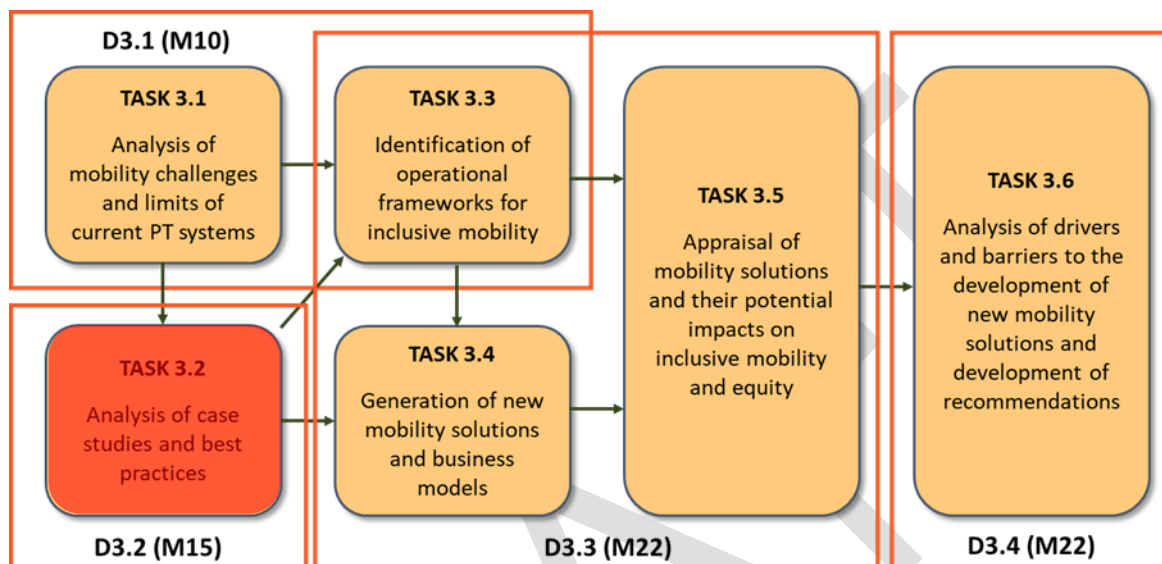
On the other hand, **this Deliverable 3.2**, final output of Task 3.2 (Analysis of case studies and best practices), researches a series of frameworks and mobility solutions from different geographical areas and countries, in order to identify case studies and best practices. This helps determining which aspects of these solutions lead to improved accessibility, better mobility and more equity in prioritised areas. Twenty case studies of innovative transport solutions have been considered to understand their advantages and limitations.

But HiReach aspires to go beyond innovative but already implemented or piloted experiences, to explore creative business models for the needs/problems identified while analysing the targeted transport demand. To this end, a **multidisciplinary workshop** for European researchers, industry representatives, end-users and policy makers (at local, regional and national level) will be organised as a next step.

Besides, the HiReach participants of **focus groups installed in WP2 will be engaged** to assess the identified innovative transport solutions which may rectify the identified issues/improve the capabilities of the solutions and allow to understand to which degree these innovations might affect their behaviour or their direct involvement as prosumers.

As final outputs of WP3, the **critical assessment of the explored mobility concepts** will feed **recommendations** on how to implement mobility solutions to cope with transport poverty. Recommendations will be tailored for different stakeholders: public authorities, operators/new enterprises, users, in the form of guidelines and manuals.

Figure 1-1: D3.2 in the workflow of HiReach WP3 (Identification of new mobility options and business models)



Source: Own elaboration

1.2 Structure of the document

This deliverable is organised in 5 chapters. In **Chapter 1**, the background and goals of the deliverable are presented.

Chapter 2 classifies a full range of possible innovative solutions for improved inclusion. This is followed by further information on how the twenty case studies were shortlisted and by the methodology used for the analysis.

After setting the methodology, **Chapter 3** presents and summarises the twenty selected and classified case studies. Each case includes the description of the service, its usage, the drivers and barriers in relation to the type of measure, how it contributes to the reduction of transport poverty, some similar practices, and an estimation of its business potential. Full details of each of the case study are reported in **Annex 1**.

Chapter 4 illustrates the cross analysis and the assessment of the case studies, reflecting on the business potential of the innovative solution and investigating relevant market segments and places to which the service could be transferred and deployed into.

Finally, **Chapter 5** summarizes the conclusions from the cross-analysis of the twenty case studies and next steps of WP3 are introduced.

2 Identifying innovative mobility solutions

The chapter describes how the different available mobility services have been preliminarily classified and which domains have been considered as relevant element of innovation for the HiReach inclusive mobility solutions. It also presents the selection process and the methodology for the analysis of the case studies.

2.1 Classification of mobility solutions

There are many forms of mobility services and enabling technologies that help to reduce transport poverty. These range from new forms of demand-responsive transport services, community-based car-sharing up to the introduction of new apps that help the vulnerable user to find its way. New legislation and cooperation between existing services might also help to better integrate the present offer.

Deliverable 3.1 provided a first classification of available inclusive mobility services and options into three main categories:

- 1) **Publicly-contracted**
- 2) **Market-based**
- 3) **Community-based**

Publicly-contracted transport services can be either delivered by public transport operators or local businesses (e.g. taxi companies receiving subsidies). However, they can also be directly organised by the public entity (e.g. the transport of pupils operated by the school itself). This category includes special and dedicated services that are organised and funded by public authorities (e.g. door-to-door minibus services for people with disabilities or healthcare needs or DRT services in low density and rural areas).

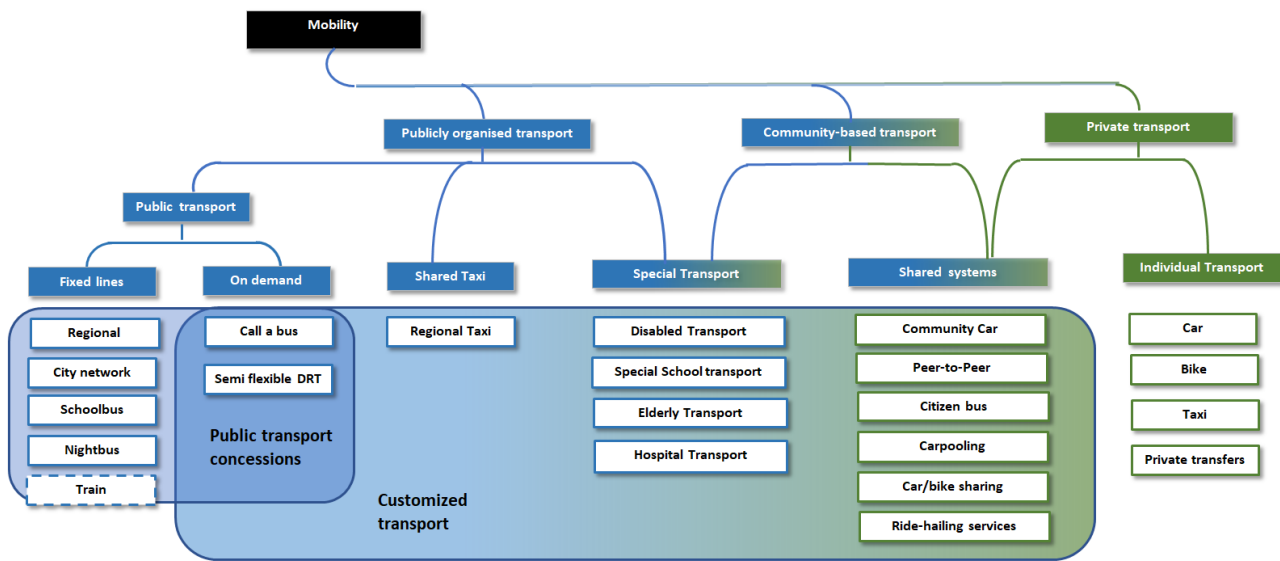
The market-based mobility services have a commercial approach, with the objective of resulting in a profit to the entity that owns or has invested in the means of providing the service. These services can be differentiated by traditional options like taxis and pre-booked private hire vehicles, or newer options developed in the sharing economy, which are favoured by technology advancements (i.e. ride-hailing services organised by the so called Transportation Network Companies or TNCs).

The informal, peer-to-peer and community-based mobility options include ride-sharing (carpooling), shared “village cars” and also community transport services provided by non-profit entities receiving minimum subsidies.

In order to allow **a better identification of available mobility services and options**, a further classification can be adopted, as described in Figure 2.1. This classification also takes into account:

- **who organise the service:** public entities, not-for-profit organisations and informal groups of citizens (community-based), or private entities (transport operators and individuals);
- **the clusters of services:** public transport, shared taxi, special transport, shared system or individual transport.

Figure 2-1: Classification of mobility options



Source: Own elaboration

Publicly organised and regulated transport includes public transport, taxis and special transport of vulnerable user groups like elderly transport or school transport. Public transport consists of fixed lines (regional/city network, train, etc.) and demand-responsive transport like semi flexible lines and on-demand bus.

Community-based transport can operate both special transport (i.e. Community Transport Services) and shared systems like community cars, peer-to-peer car sharing or carpooling, whereas **private transport** includes individual options (car, bikes), market-based shared solutions (e.g. car sharing, ride-hailing) and private collective transport.

2.2 Selection of case studies

In HiReach Task 3.2 **already existing services, initiatives and business cases of innovative mobility solutions** have been preliminarily identified and assigned to one of the public, community-based or private forms of transport available on the market.

Twenty handpicked transport solutions have been scrutinised to understand their accomplishments (and limitations), analyse their business models, original management solutions as well as social and technological innovations.

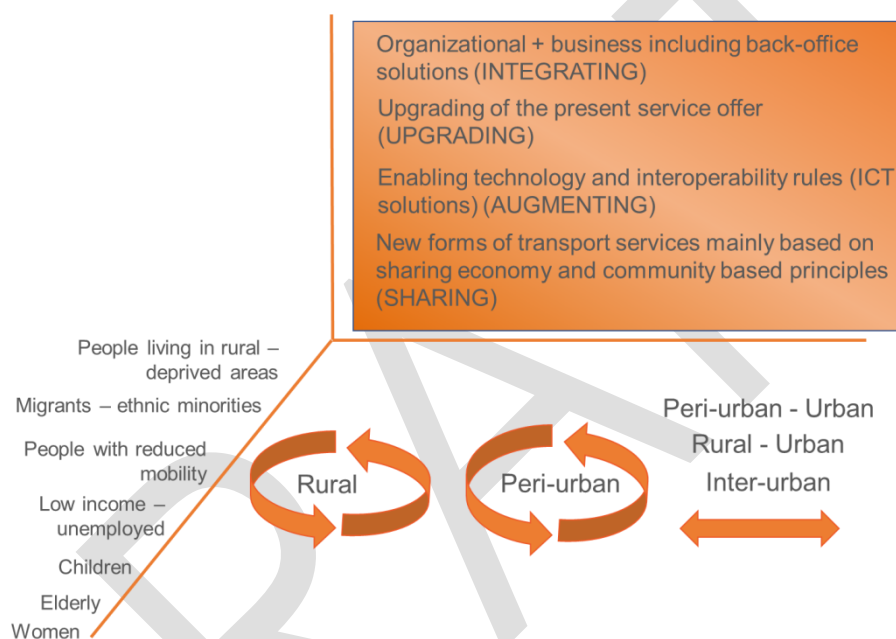
In this respect, **four domains have been considered as relevant elements of innovation**. They have been used for both the selection and the assessment of the case studies' role in improving inclusion. Such domains are:

- 1) Implementing new organisational and/or business models, including back-office solutions that assure a better integration or exploitation of the offered services: **Integrating** new organizational and business solutions.
- 2) Providing services or developed strategies that help to upgrade the image and attractiveness of the present public transport offer and other mobility options: **Upgrading** the present service offer.

- 3) Enabling technologies (ICT solutions) and interoperability rules that increase the access and usage of the services (e.g. real-time booking systems, integrated ticketing, multimodal travel planners, etc.): **Augmenting** the existing services.
- 4) Developing new forms of transport services based on sharing economy and community-based principles that allow for more efficient use of the means of transport: **Sharing** solutions.

In addition, the case studies have been put in relation to the **social and spatial layers** addressed by the HiReach project (see D2.1, Mobility in prioritised areas: mapping the field) as shown in the following figure.

Figure 2-2: Domains for the assessment of case studies



Source: Own elaboration

It is very important specifying the **vulnerable user group** (social layer) the different services are aimed at:

- People who **are unemployed or have a low-income** can't afford to use public transport (e.g. ticket) or buy an own car.
- **People living in rural and deprived areas** don't always have the possibility to use public transport due to the fact that some regions are poorly served by transport services. Low frequencies or long transit times in such places results in a forced car ownership.
- Considering their age, **elderly people**, with diminishing physical and/or cognitive capabilities, have different transport disadvantages.
- In contrast, **children and young people** rely on adults to fulfil their mobility needs due to lack of autonomy or responsibility and limited financial resources.
- In addition, transport systems don't always have in mind the particular needs of **people with reduced mobility**.
- **Migrants and ethnic minorities** face mobility challenges due to language and cultural barriers, which might limit their ability to understand how the transport system

works. In addition, most of them don't have the financial resources to use public transport.

- Finally, **women** also face mobility challenges due to services not tailored on their mobility needs and safety issue, that limit their mobility and travelling opportunities.

In addition to this classification based on social groups, a further classification by transportation area has been made for the identified mobility solutions.

The **spatial analysis** performed in WP2 has identified three main layers: i) **urban**, ii) **peri-urban and iii) rural areas**, that consider geographic, geopolitical, transport service levels and regional disparities between different parts of the European Union.

The challenges that individuals encounter while being mobile are directly connected to the characteristics of the space they move in. In addition, social disadvantages affect people differently in these three different spatial entities.

For the scope of this document, the transportation area can include either flows between an area type and another area type (e.g. between peri-urban and urban, rural and urban, etc.), or flows within one area.

2.3 Methodology of the analysis

After having selected the twenty case studies and preliminarily analysed their characteristics through desk research (reviewing official documents, websites, newspapers, etc.), managers and representatives of the different initiatives have been interviewed in order to understand how they implemented the solution and if there was any form or inclusive planning practice.

The following items have been investigated more in detail for each case study as reported in Annex 1:

- The **description of the service** includes where the service has been implemented and where it is operated. In addition, it was asked when and how the service was launched. An important information is to which social group it is targeted.
- Based on user data or reviews, it is explained how the service is being **used** and how many people are using it. This allows to see if the service is successful or not.
- It has been assessed what are the key **drivers** for its success and what are the **barriers**. In addition, it was asked what facilitated or challenged the implementation and the present running of the service.
- The usage and the aim of the service allows to see how the service performs on **reducing transport poverty**.
- A service relies on the **resources** it uses. It is important to know which resources are needed, what are the costs and how they are distributed between the different stakeholders.
- A service can be facilitated or challenged by **specific regulations and legislations**. It is important to know if a service must apply to specific regulations or not. In addition, the **organizational framework** of a service, including the needed competences of the different actors, reflects on its success or failure.
- Similar successful **good practices in other regions or countries** have been also described.

- An important aspect for the analysis is the **business potential of the case study**, i.e. the potential market segments the service can apply and the potential of transferability to another region or country.

Based on these questions, a cross-analysis of the case studies has been applied considering the following elements:

- the organisational and operational frameworks,
- the business potential of the innovative solution and how it can be transferred to other regions,
- embedded technologies and interoperability rules (ICT solutions),
- social innovation.

Before presenting the cross-analysis in Chapter 4, the next chapter introduces short summaries of the twenty selected case studies. The full case study descriptions are presented in Annex 1.

3 Case studies of inclusive mobility solutions

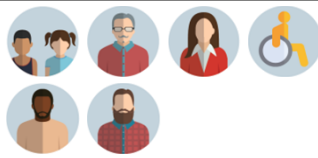






The chapter presents the 20 case studies that have been selected and considered in the analysis. They are classified into the four domains mentioned in sub-chapter 2.2 (integrating, upgrading, augmenting and sharing). Main elements regarding the functioning, the targeted users and contribution to transport poverty reduction, usage levels and overall performance, costs for the users (fares), needed resources and business models, drivers and barriers are summarised for each of them.



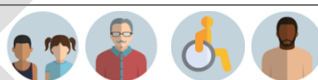




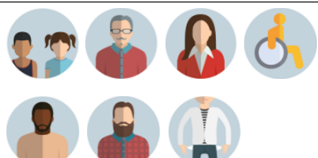





3.1 Overview

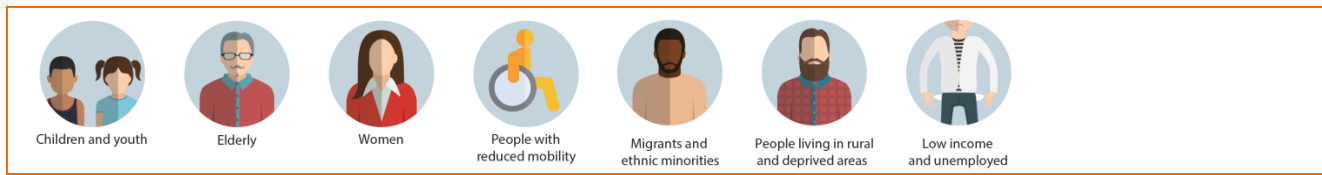
The table below lists the **20 case studies that have been selected and considered in the analysis**, following the methodology described in the previous chapter.

In the selection process, a good mix by territorial application and social groups has been guaranteed. In addition, it has been kept in mind the success they have obtained, including also less positive experiences to understand the reasons behind less positive outcomes. Finally, only those case studies with a potential of being transferred have been chosen.

Table 3-1: List of case studies with details about type of service, transportation area and potentially targeted vulnerable user groups

CASE STUDY	COUNTRY	TYPE OF SERVICE	AREA	VULNERABLE USER GROUP
1. Boleia	Portugal	Ridesharing/Car-pooling platform	Rural, Peri-Urban, Urban	
2. Bummelbus	Luxembourg	On-demand bus driven by unemployed	Rural	
3. Bürgerbus Aichwald	Germany	Community bus	Rural	
4. Buurtkar	Belgium	Mobile shop and social service	Rural	
5. Dörpsmobil	Germany	Community car	Rural	
6. Fairfahrt	Germany	Ridesharing platform	Rural	
7. Fietsmeesters	The Netherlands	Cycling training programme	Urban	

CASE STUDY	COUNTRY	TYPE OF SERVICE	AREA	VULNERABLE USER GROUP
8. FlexTrafik in Denmark	Denmark	Demand-responsive transport scheme	Rural, Peri-Urban, Urban	
9. GoOpti	Several European countries	Shared airport transfers (ride-hailing service)	Rural, Peri-Urban, Urban	
10. GoOV APP	The Netherlands	Public transport smart travel assistant	Rural, Peri-Urban, Urban	
11. Local Link	Ireland	Rural transport scheme	Rural	
12. Locomobile	Belgium	Social taxi	Rural	
13. PickMeApp	Italy	Ride-hailing service	Peri-urban, Urban	
14. Pink Taxi	International	Marketplace platform for women-only taxi services	Urban	
15. Trasport a la Demanda in Catalonia	Spain	Demand-responsive transport scheme	Rural, Peri-Urban, Urban	
16. Taxi Colectivos Beja	Portugal	Shared taxi	Rural, Peri-Urban, Urban	
17. Uber	International	Ride-hailing service	Peri-Urban, Urban	
18. Village House Service Centre	Finland	Community service centre	Rural	
19. Welcome to Berlin Ticket	Germany	Public transport ticket for refugees	Urban	
20. ZOOV	The Netherlands	Demand-responsive transport scheme	Rural, Peri-Urban	



Source: Own elaboration

In the following sections, the twenty selected case studies listed above are presented and classified into the specific innovation domains described in Chapter 2, namely:

1. **Integrating** new organizational and business solutions;
2. **Upgrading** the image and attractiveness of present service offer;
3. **Augmenting** the existing services through ICT solutions and interoperability rules;
4. **Sharing** and community-based solutions

For each case study, a small summary gives an overview of the service and describes:

- the targeted user and the contribution to transport poverty reduction,
- the usage level and the overall performance,
- the costs for the users (fares),
- the needed resources and the business model,
- the drivers and the barriers.

Some case studies fit in several domains, however, the case study is reported in the domain which fits the best.

The full case study descriptions are presented in **Annex 1**.

Table 3-2: Classification of case studies by innovation domain and type of service provider

CASE STUDY	INNOVATION DOMAIN				SERVICE PROVIDER
	INTEGRATING	UPGRADING	AUGMENTING	SHARING	
1. Boleia			X	O	Private
2. Bummelbus	O			X	Public
3. Bürgerbus Aichwald	X			O	Community
4. Buurtkar	O			X	Public
5. Dörpsmobil	X			O	Community
6. Fairfahrt			O	X	Community
7. Fietsmeesters		O			Public
8. FlexTrafik in Denmark	O	X	X		Public
9. GoOpti	O		X	X	Private
10. GoOV APP		X	O		Public
11. Local Link	X	O			Public
12. Locomobile	O			X	Public
13. PickMeApp	X		O	X	Private
14. Pink Taxi		O			Private
15. TAD Catalonia	O		X		Public
16. Taxi Colectivos Beja				O	Public
17. Uber	X		O	X	Private
18. Village House Service Centre				O	Community
19. Welcome to Berlin Ticket		O			Public
20. ZOOV	X	O			Public

The Case studies are in alphabetical order. The domains marked with "O" are the dominant ones.

Source: Own elaboration

3.2 New organizational and business models (Integrating)

This first domain includes new organisational and/or business models solutions that assure a better integration or exploitation of the offered service. This domain includes the case study summaries of **Bummelbus**, a door-to-door service; **Buurtkar**, a mobile shop and service centre; **Flextrafik** in Denmark and **Transport a la Demanda** (TAD) in Catalonia, all demand-responsive transport services; **GoOpti**, a demand-responsive transportation network company and **Locomobile**, a social taxi.

3.2.1 Bummelbus (Luxembourg)



Bummelbus

Bummelbus (translated in English, it means a “bus which is strolling around”) is a **combination of a social project and a mobility service offering door-to-door trips by means of on demand minibuses**, which currently run in the **northern (rural) region of the country of Luxembourg**.

The service was launched in 2009 by the “**Forum pour l’emploi**”, a non-profit organisation, with the objective of **coaching, supporting and occupying long-time unemployed people** as drivers thus promoting the integration of jobseekers into the workforce. The operative region includes 39 municipalities with around 80.000 inhabitants and there are currently 47 minibuses in service. The service reaches low accessibility social groups and areas. It is considered a **supplement to public and private transport** and it supports elderly people, children or people who don’t have car.

Anyone who lives in the territory of the partner municipalities can take advantage of this service for short-distance journeys, especially within the municipality and neighbouring villages. Passengers are both adults who use it to go shopping, medical visits or everyday activities (including commuting to work) and children who use the Bummelbus to go to their sports training or music school. The users can rely on a flexible service, which brings them comfortably, safely and flexibly from one place to another one.

Ticket fares are differentiated between adults and children and varies with the distance from 2€ in a radius of 10 km to 7€ in a radius of 35 km for adults. In 2017, **142.767 persons** used the Bummelbus, 55% out of them were children, 43% were adults, and 2% accompanied children. In comparison, in 2010, 101.350 persons used the service.

The initiative is funded by the **State and private stakeholders** that can buy advertising spaces on the vehicles. The funding of the state covers 70% of the operating costs, including the salaries for the employees. An important advantage is the **permanent funding** by the state of Luxembourg, which permits a stable system and supports its sustainable operation. The funding allows the project to increase, so that Bummelbus is constantly expanding its operational area.

3.2.2 Buurtkar (Belgium)



The Buurtkar ('neighbourhood cart') is a **mobile shop and service centre in the municipality of Bornem in Belgium**.

People come to the Buurtkar to buy (fresh) food or other goods. The driver also brings groceries inside or helps with small tasks in the house. For the municipality, the Buurtkar is an **important communication channel** to inform people about activities, new services and existing transport options (local PT, services for PRM).

The Buurtkar functions as a **meeting place** that stimulates social contact among local residents. It allows elderly people to live at home and be self-reliant for as long as possible. Buurtkar reduces transport poverty by bringing services closer to people and take away much of the need to travel. Especially for elderly people, people with reduced mobility and/or people who have no access to a car, it is important to have basic services nearby. Finally, it offers employment opportunities for vulnerable groups.

Introduced in 2006, on average the Buurtkar has **45 to 50 clients per day**, who spend around 13€ on average. In total, more or less 400 inhabitants of Bornem use its services.

Exploitation costs amount to around **20.000€ per year** (not including the cost for purchasing goods that are offered for sale). The Buurtkar itself (as a shop) is **self-financing** and even yields a yearly profit of more or less 20.000€. This means that the profit from the sale of products covers the operating costs and social employment (excluding overhead and other personnel cost).

The Buurtkar was launched by the **municipality of Bornem's social department**, together with Ecoso (then WRAK), **a non-profit organisation promoting social employment**. After the pilot phase, the collaboration with Ecoso ended and in 2016 the municipality's 'business department' ('Autonom Gemeentebedrijf') took over the 'economic activities' (sale of goods), as the social service department is exempt from VAT administration. A steering committee with several partners (representing the municipality, local traders, the regional government and users of the Buurtkar) is responsible for making strategic choices, monitoring of the results, giving feedback and introducing new ideas.

One advantage of the Buurtkar concept is the **cooperation with local producers and traders** to offer high quality, fresh, local products. A limit was a quite **long preparation time** because there were no concrete examples to follow and the municipality had no experience in shop keeping. Currently, people are still a bit reluctant to discuss personal issues because of privacy reasons so this aspect requires some more thought.

3.2.3 FlexTrafik in Denmark



FlexTrafik is the name given to **all demand-responsive transport services in Denmark**, particularly those addressed to citizens who cannot use or have no access

to traditional public transport. It comprises a **demand-driven service**, meaning that it is organized according to citizens' needs and not to a fixed route or timetable.

The service is based on a nation-wide ICT infrastructure and management centre called FlexDanmark that **assigns the requested trips to different transport operators and optimizes them based on available vehicles, needs and convenience of the individual customer**. The basic idea of FlexTrafik is to optimize each individual trip, in the best possible way, based on all available vehicles, needs and (in)convenience of the individual customer. A first coordinated FlexTrafik system was established in 1997. The flexible services are defined by special norms and operated in substitution of traditional scheduled bus lines using taxis, car-hire with driver, minibuses or DRT buses.

FlexTrafik's principal advantage has been the ability **to entirely coordinate the subsidized transport services** and to use an innovative software capable of selecting the best vehicle for each trip.

In terms of transport poverty, FlexTrafik helps solving mobility issues in places where access to public transport is very limited or non-existent and by providing targeted service to those categories of people for which mobility generally represents a challenge.

In 2017, FlexDanmark handled more than **6 million of FlexTrafik trips** at a combined pay-out of about 150€ million. This results in approximately 22€ per trip on average considering all the different services (including the very expensive special-needs services). They moved more than **250.000 passengers** using more than **5.000 vehicles** and 750 transport operators. The main users of the service are either any person who needs a flexible and tailored alternative to the use of regular public transport (open service) or specific categories of people who, for various reason, require the use of FlexTrafik (closed service). These categories include elderly, children, persons with disabilities and persons requiring medical care.

The principal element is constituted by the FlexDanmark software whose core responsibilities are to acquire, maintain and develop the IT systems in support of FlexTrafik operations. The software licences and upgrade cost approximately **1,8€ million per year**. There are around 110 employees working for FlexDanmark.

FlexTrafik is still an integral part of the public transport provision organized by the five Danish **public transport organizations** (PTOs) Nordjyllands Trafikselskab, Midttrafik, Sydtrafik, FynBus and Movia, who act as mobility advisors and operators for the **local authorities** in the respective geographical area. In Denmark, the mobility authority and responsibilities are held by the local municipalities and regions. However, a law allows for the transfer of responsibilities to the public transit organizations (PTOs).

3.2.4 GoOpti (Slovenia)



GoOpti is a **demand-responsive transportation network company** providing innovative matching of passengers for shared and private transfers between airports and smaller towns/cities.

Launched in Slovenia in 2011, GoOpti currently operates its service in **several European countries** and targets people living in smaller

towns who requires airport connections. Users map out a route, book, and pay for a trip using a website or a mobile app. Three types of transfers are offered: shared, private, and customized.

GoOpti helps reducing transport poverty by **providing a transport service in areas where public transport connection lacks**, including smaller and semi-rural towns where people struggles to reach nearby airports or even to connect with neighbouring towns.

As of October 2018, the service has done **145.000 transfers** carrying more than **1.3 million passengers**. The current fleet is constituted of more than 800 shuttles that serve 55 cities and 42 airports in 7 different countries.

GoOpti's business model is based on the **franchising scheme**. It has (currently) contractual agreements with **21 franchisees in three countries** (Slovenia, Italy, Croatia), who execute transport and may have subcontracting transport companies that can execute transfers on their behalf. This is particularly advisable for franchisees who either don't own many vehicles in their fleet or operate on the busiest routes. Partnership with other transport companies ensures reliability of transfers especially in high season. Generally, GoOpti franchisee is a company operating in tourism or transport business who wants a steady and profitable business.

The main strength consists in **offering advantages for both users and carriers**. Users get a flexible, reliable and affordable transfer to the airport, while carriers get the opportunity to launch new routes. On the other hand, **effectively bringing the service and create enough demand** in the most rural/isolated areas is one of the main limits.

3.2.5 Locomobile (Belgium)



The Locomobile, created in 2011, is a **social taxi** service transporting (most of the time) single individuals at affordable prices. It's a door-to-door transport service available in **19 communes of the Province of Luxembourg**, which, area-wise, is the largest province of Belgium, but with a very low population density. The rural character of the province means that the residents must rely on their cars to get to a specific destination.

Locomobile's objective was to create a mobility service to compensate the insufficient offer of public transport. Its aim was to set up a structure, in partnership with the municipalities and the province, to enhance as best as possible people's possibilities of movement. The service is offered to less mobile or socially disadvantaged people. Most of the users live in rural areas or are willing to reach activity locations in the countryside.

One advantage of Locomobile is that it has basically **no competitors** and people depend on it. Another positive aspect is that it is non-profit, based on a community approach. In addition, Locomobile offers a flexible transport service, which picks people up whenever and wherever they want. The Locomobile service is a **complementary offer to public transport**. It allows people to get to key services at reasonable cost, in reasonable time and with reasonable ease and safety conditions.

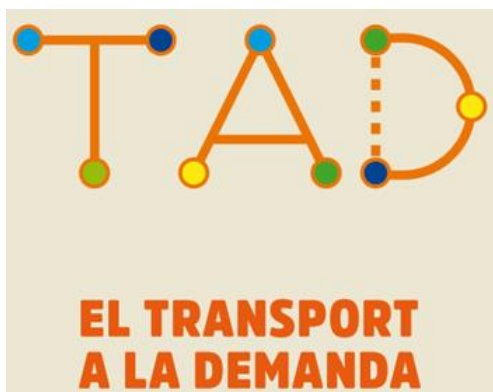
The last data from 2017 reveals that the 14 Locomobile vehicles have done **20,200 trips**. The cars have travelled **more than 500.000 km per year**.

To use one of the Locomobile's cars, the client needs to pay a **flat rate of 2.87€** for any journey of less than 8 km, 0,36€/km travelled for longer journeys and an hourly fee of 8€ if an escort is to assist the applicant out of the vehicle (for example, to the hospital).

In 2018, the Locomobile service had an **annual budget of 500.000€**, to which the Walloon Region and the partner municipalities contribute. The main driver of the implementation and the present running of Locomobile is the support of the public administration. Indeed, the Province of Luxembourg is compensating the difference between the revenues (fees paid by beneficiaries) and the costs (car purchase & maintenance, HR salaries, etc.).

On the other hand, the biggest limit is **to keep a sustainable budget**. There is an increasing demand and being able to invest in new vehicles and new commitments, new partners will be crucial.

3.2.6 Transport a la Demanda in Catalonia



Transport a la Demanda (TAD), established in the **Autonomous Community of Catalonia in Spain**, consists of the **different demand-responsive transport services**. These are mostly referred to public transport extensions or integration like on-demand buses or stops and services in low demand areas operated by taxis and vans. Their application includes also shuttle services in natural areas.

More than 200 TAD services are authorized and supported with public funding by the regional government (Generalitat) of Catalonia and the mobility agencies at provincial level. Three of them are

established in **three small municipalities: Pineda de Mar, Saint Esteve Sesrovires and Vallirana in province of Barcelona**.

The first two TADs (in Pineda de Mar and in Saint Esteve Sesrovires) are managed by a shared call center and central office created by the Association of Catalan Municipalities for mobility and urban transport (AMTU). These services are very simple and connect distant neighbourhoods or substitute regular bus rides by using taxis. In Vallirana, the municipality and the local PT operator launched an on demand bus line that make use of an innovative platform developed by the startup Shotl and is based on dynamic routing and a set of 85 stops.

TAD services demonstrated to be a viable solution for introducing or extending public transport coverage as well as reliability and attractiveness of the service in rural and peri-urban areas, including very dispersed areas or isolated neighbourhoods of compact towns.

A feasibility study performed by AMTU in 2015 estimated a **potential demand of around 200.000 passengers/year** and 80.000 journeys **resulting in 480.000 km driven per year** in an area of eight associated municipalities in Catalonia. It also estimated 225.000€ for the investments in the call-centre equipment and software (including vehicles' on-board units, the software licence and installation service) plus around 40.000€/year for its functioning (3 full time operators and 1 part-time coordinator of the system). The running cost of a TAD service operated with taxi or van ranges between **1.15€ to 1.50€ per km** (AMTU, Gencat).

The **framework conditions have favoured the introduction of demand-responsive transport services**. Legislation at both national and regional level indicated flexible public transport as viable options for low density areas thus allowing the possibility to embed TADs in a public transport concession (as part of the regular service). Another driver is the presence of well-

established and simple organisational schemes (e.g. the associated platform of AMTU) and, more recently, the introduction of innovative IT systems (i.e. Shofl, FlexiTransport Catalunya).

On the other hand, the **main limits** the Catalan scheme has to face are related to the integration of TADs into the PT fare system at regional level (type of validation and connected onboard units). Also, traditional bus operators are not interested in transforming conventional bus lines into TAD, because of the difficulties in establishing a call/operative centre and especially for the uncertainty of the revenues.

3.3 Upgrading of a present service offer (Upgrading)

While the first domain included case studies where the business model assured a better exploitation of the offered service, this domain includes examples of services that help upgrading the accessibility and the attractiveness of the present transport offer.

The examples in this domain include **Fietsmeesters**, an association organizing cycling workshops to migrants; **Local Link**, a rural transport program in Ireland; **Welcome to Berlin Ticket**, a program allowing refugees to travel in Berlin for reduced fares; **Pink Taxi**, a taxi service specifically dedicated to female passengers, and **ZOOV**, a transport on demand service.

3.3.1 Fietsmeesters (The Netherlands)



The Fietsmeesters is **a training and coaching initiative in the province and city of Utrecht in Belgium**. Its goal is to achieve safer cycling through three main activities: organizing cycling workshops at schools, practical cycling lessons, and cycling education. Lessons are organised in the city of Utrecht and its surrounding region.

The initiative was launched in 2015 and it is targeted towards children of school age, women (especially those with a non-western background) and also elderly people; the lessons are focused at the neighbourhood level.

In total, 14 neighbourhood cycling teams have been established. The teams give cycling lessons focusing mainly on women. The participants learn to ride a bicycle during a 10 week-coaching period. Every year, 24 courses with about 10 participants each are organized, resulting in about **240 participants each year** (2016, 2017 and 2018). To encourage the use of the bicycle in daily life, the Fietsmeesters provides bicycles for the participants with a big discount. About 100 to 120 of the participants bought a bike during or after the course.

The association is supported by the city of Utrecht (city administration and the politicians). The initiative is for 100% sponsored by the city, however, it is not part of the basic funding of the municipality yet. The total **budget is 71.000€ per year**.

One of the advantages is that the city of Utrecht pays a special attention for its neighbourhoods, allowing a better approach to potential participants and focusing on the most vulnerable groups. The main idea of such a **local strategy** is that public participation is the driving force behind healthy and vibrant neighbourhoods. Another key point is a

strong network of volunteers. Enough volunteers ensure the success of the initiative, and they are provided by a good city network.

3.3.2 Local Link (Ireland)



Local Link is the organizer of a **rural transport program in the Republic of Ireland**, started in 2002, that fits the needs of the local communities and provides a year-round operation in sparsely populated areas, where private public transport companies stopped operating due to low levels of demand.

The **National Transport Authority (NTA)** has then step in to manage the links between towns and their rural catchment areas, as well as to integrate the service into the overall public transport system

of rural areas. Local Link is a lifeline to many people in rural areas, who are dependent on it to attend medical appointments, employment and for social gatherings, to prevent total physical isolation where they live.

Local Link is deployed all over Ireland by nearly 900 drivers, working for over 400 private operators. Currently, **almost 2 million passengers** are transported (the number has been consistently raising, and so have regular journeys, which are becoming more frequent than demand-responsive services) and the average cost per passenger transported amounts to 0.75€.

Local Link has 17 offices, one per each administrative area. They play a key role in planning services, either regular or flexible, and in doing this, they explore a set of transport options, adapted to the needs of local communities, including community/voluntary car schemes or car-sharing options. In fact, the NTA has overarching responsibilities in this field, but it is up to the local offices to co-ordinate, develop and manage the implementation of community and local transport in their areas. Local Link offices are tasked to specifically address the transport needs of excluded persons, particularly those living in remoter rural areas with no, or limited, access to either private or other public transport, that wish to continue living independently in their rural communities to do their day-to-day business.

Funding of this programme currently benefit from two main streams, one from the Department of Transport, Tourism & Sport, and another one from the Department of Social Protection (which funds the free travel pass scheme). Besides funding from state government, other sources of income include fare income and the provision of transport services to other organizations, which is still marginal.

According to the funding actually spent in the programme for the whole country, one can estimate **an overall cost per km of 1,20€ and a cost of 0,75€ per passenger transported**, which scores very high when benchmarked against other existing initiatives and shows that this solution is cost-effective.

The main advantage that facilitated the emergence of Local Link was definitely the **absence of a market for conventional private operators**. The NTA had to step in and organize the public transport services to guarantee that citizens living in these areas have suitable transport options, which might involve community-based schemes. The emergence of this problem led to the other main advantage which consists in the political view of the

national government which was capable of developing a suitable regulatory framework and to integrate rural transport in the overall public transport system. Arguably, this political endorsement was a cornerstone for the success of Local Link.

A core limit of Local Link lies in **fostering volunteerism** in the provision of transport within the different catchment areas. This includes building a panel of vetted participants in community car, car-sharing, volunteer driving and passenger assistance.

3.3.3 Pink Taxi (UK)



Pink Taxi is a **marketplace platform for women-only taxi services** that was launched in 2006 in the UK, with the idea of providing a safe transportation option to female passengers and empowering their role in the society.

Since its launch, more than 100,000 applications have been downloaded and 700,000 passengers per year have used the service, which is currently active across the globe in 18 countries and 50

cities.

The service uses high technologies, innovative solutions for drivers and customers, and relies on a blockchain implementation that includes a virtual wallet, driver and passenger feedback, cashless transactions through tokens, and token exchange program. All these elements ensure security and high-quality standards to the service.

Key elements include safety for both passengers and drivers, transparency in the way the personal data are managed and the costs are distributed, and a decentralization that allows users to personally choose the vehicles and the drivers that better correspond to their preferences.

Pink Taxi's principal components are the **ridesharing App**, that connects drivers with passengers, and the **advertisement campaign**, fundamental to bring the service into new markets and countries.

In order to operate the service in a new city, Pink Taxi has to invest around 350,000 Euros. With small variations between cities, Pink Taxi earns from a commission fee which is about 10%, while the rest of the money goes to the driver.

Pink Taxi's principal future goal is to create a single worldwide platform for the different national services, allowing for increased scalability, durability and security of the service. This would play an important role in helping the service's expansion into new markets and territories. Autonomous vehicle might also play a key function in shaping the service's future by enhancing the quality of its business.

3.3.4 Welcome to Berlin Ticket (Germany)



The Welcome to Berlin Ticket is a specific program offering refugees the opportunity to use public transport that has been introduced by the **Berlin Senate altogether with the public transport operators**. The initiative was launched as a consequence of the high number of refugees registered in Berlin (in 2015 **55,001 refugees have been registered in Berlin**, 1,091,894 in whole Germany).

Most of the refugees arrived between June and December 2015 resulting in constantly overstrained municipal authorities that were, in the very first place, responsible for the organization of the registration process, the provision of a proper accommodation, the satisfaction of basic needs, and other supportive actions. Very soon it became obvious that the refugees would need to travel throughout the city in order to be able to attend formal appointments or receive support of any kind. Due to lacking financial means and missing information regarding the public transport and tariff system, many refugees were travelling without any ticket throughout Berlin.

Two measures have been introduced for solving the problem: firstly, upon their arrival refugees were provided a ribbon allowing them to use the public transport for free. Secondly, after their registration they were provided the "Welcome to Berlin" ticket, valid for three months. Similar to the student ticket, the ticket for refugees has to be bought by all refugees for **26 €/month**. The reduced tariff was directly paid from the officially granted "pocket-money" of 143 EUR/ month every refugee received from the municipality. After the three months of validity the "Welcome to Berlin" ticket expires, the refugee receives a financial support and is eligible to purchase the public transport "social" ticket for around 36 EUR/month.

As the provided ticket reduced the amount of spendable "pocket" money, this allowed them to perform the trip with a certain dignity (because they paid for it) and prevented them from experiencing negative comments as a result of social envy from locals since the ticket price was close to the social ticket.

3.3.5 ZOOV (The Netherlands)



ZOOV, launched in 2017, is a **transport on demand** service for people that have no other possibility to travel within the **region Achterhoek in The Netherlands**. It is operated by 40 vehicles, including car, taxis

and small buses. The operation area includes the surrounding of the region of Achterhoek with a scope of 40 kilometres, mostly covered by rural areas with some small towns and villages. The most important destinations are the city centers of Winterswijk and Doetinchem and the hospitals in both municipalities.

A trip has to be pre-booked (one hour in advance) by phone or via the website. To be able to book a trip people have to register. Payment is done via debt collection (80%), debit card or cash. The target groups are all the people of the region Achterhoek: visitors, citizens, students, and in particular for people with reduced mobility.

Two special services have been implemented. One is **ZOOV School**, which is dedicated for children with reduced mobility. This system drives children to special schools within the region and brings them back home. The other one is **ZOOV Work**, which is dedicated for employees of a company, which employs people with reduced mobility. With small taxi busses the employees are collected at home and brought to and from the company.

Each year, ZOOV has **about 7,000 unique passengers** (the region Achterhoek has in total 260,000 inhabitants – 3.5 % of them uses ZOOV). Most of the passengers are people with reduced mobility. In The Netherlands, the Ministry of Health gives these people a so-called “indication” – this means that they can make use of dedicated transport like a taxi or ZOOV. Of all passengers, 95% are people with an *indication*. The costs of a trip **start with a fee of 2.95€ and 0.47€ are added per km** (after the first 20 km, it will cost 2€/km).

The system is **subsidized by the government**. This guarantees a good service with very cheap price for the passengers. The system is based on the integration of different target groups. Next to this, the systems tries also to integrate different transport systems. This strategy leads to a lean system with a limitation in costs. The system is replacing the expensive old taxi system, with lower costs for both the concerned authorities and the passengers.

One of the advantages is the **quality of the system**. A bonus is that **most drivers are local and regional people**. They know the region and speak the regional dialect which is appreciated by the passengers.

The most important challenge during the start of the implementation was **the split of planning of the transport and the actual execution of the transport**. When the tender was published, this gave a lot of hesitation among the possible contract partners. When the system was implemented, the planning and transport partners had to get used to each other and to the way of cooperation. Now this has proved to be one of the success factors of the system. The province of Gelderland, the region Achterhoek and seven other municipalities have signed an agreement to work together on ZOOV.

3.4 Enabling technology/ICT solution (Augmenting)

Enabling embedded technologies and interoperability rules (ICT solutions) increases the accessibility to the services and allows for interoperability. Such solutions extend the potentiality of the existing services by combining offer with supply.

Selected case studies in this domain include **Fairfahrt**, a ridesharing platform; **GoOV App**, an app that supports independent travel with public transport in the Netherlands; **PickMeApp**, an on-demand transport service especially targeted to families; and **Uber**, a transport on demand service through a driver-passenger matching platform.

3.4.1 Fairfahrt (Germany)



Fairfahrt (fair-ride in German) is a **ridesharing platform organized in and around the city of Romrod, in the rural area of Hessen in Germany**. The main idea is that car drivers on their way to a specific place can pick-up persons at one of the five designated stations and offer them a free ride in their own car.

Participating riders have to register themselves and receive an ID card allowing them to add a riding request at one of these five stations.

The drivers who only need to download the developed App (and do not necessarily need to register themselves), either receive a push-notification or are being informed by a green lamp above one of the stations that a ride-request has been entered to the system. This functions via the chip that every registered person receives. The chip has to be put in front of the stations and the destination of the ride has to be entered. Cars passing by can pick up the persons waiting next to the stations.

Launched in 2017, currently the service is being further improved and has around **10 users/month**.

The service could only be realized with the **strong commitment of the founders** that also developed and installed the technical equipment related to the service. The mayor supported the project right from the beginning and helped to bring the county as another formal supporting entity on board. Moreover, she supported the fundraising to cover the investment costs.

The largest limit can be seen in the **development of the technical infrastructure**. Another limit that occurred was to **dispel the fears** regarding a newly emerging competition on the side of the public transport operator.

3.4.2 GoOV APP (The Netherlands)



GoOV is an **App that supports independent travel with public transport in the Netherlands**. It acts as a smart travel assistant that supports a traveller step-by-step from door to door, with detailed route navigation and up-to-date dynamic PT information. **Travellers who need more guidance can be continuously monitored, passively or actively**. Parents and supervisors can follow the journey through the online GoOV portal. If the traveller gets stuck during the trip, does not

know what to do or panics, (s)he can also call the helpline, that takes action to help them reach the final destination (by public transport or, if this fails, by sending a taxi) via a **'home delivery guarantee'**..

The App, tested since 2012 and launched in 2015, can support various vulnerable groups in learning how to use public transport independently: people (including children up from 11 years) with a mental disability, brain injury, cognitive disorder, autism, visual impairment, psychiatric disorder and elderly people.

People with a disability have different needs; therefore, GoOV collaborates with partners that offer additional services, e.g. **Samen Reizen met** (travel together): a service whereby volunteers (which are looking for a job) travel along to help persons with a disability to learn how to travel to school by bike or public transport.

After an initial training session in a small group (+/- 5 travellers and their parents or coaches), to show how the App works and what to do if there is a problem, there is a training period of four to eight weeks, in which trips to the most common travel destinations are practised together, until the parent/guardian/coach indicates that the person can make the journey independently. Then there is a return session to discuss how it went and how to continue.

About **1.000 people** have used GoOV so far. 84% keeps using public transport. 90% of the users use GoOV to travel to school, another main client group is seniors.

The starter's package (app, helpline, training sessions, home delivery guarantee) for GoOV costs **650€** (for 6 months). Afterwards, users pay a **monthly subscription fee of 20€ to 45€** (depending on the services needed).

In most cases, the municipality pays. Special needs transport to school, by taxi, is expensive. In the Netherlands, it costs on average about 2,750€ per student per year. If a student can use public transport instead, with the help of GoOV, the cost amounts to about 1,500€ in the first year, and afterwards 1,000€. This means substantial savings for the municipality (who pays for school transport). Institutions for disabled people can also save costs for transporting clients to and from the day care centre or work.

A fund set up to offer technological assistance to people with a disability, helped to finance the start-up of GoOV. Additional funding came from subsidies and prize money. GoOV also received support from the Dutch princess Laurentien. Transport for people with special needs is one of her priorities and she has helped to put the topic on the political agenda and to get in touch with the right people.

GoOV makes use of open data which keeps the cost low. In the Netherlands, all PT operators (including community and volunteer buses) are obliged to supply data to the National Database of PT (NDOV).

It helps a lot if the **municipality** – who is in charge of organising and financing school transport – **actively promotes GoOV** and offers incentives to give it a try. Also, users are informed very clearly about the cost (how much does the PT pass cost, how much does the app cost, how much can they save on taxi costs) and GoOV staff also help with the administrative procedures.

3.4.3 PickMeApp (Italy)



PickMeApp is an **on-demand transport service** that offers transport solutions specifically tailored for children, elderly, and disabled people. The service is currently active in the **Italian city of Potenza**.

The service integrates innovative mobility elements, including flexibility of a door-to-door service, online booking and payments, GPS traceability of the

vehicles and quality of service offered. An algorithm optimizes multiple bookings and shared routes in order to make journeys suitable and affordable. A key element of PickMeApp is its door-to-door collective transport program that makes the service very competitive and personalised for the users. In addition, the real time tracking function of the route and position of the users.

PickMeApp plays an important role in reducing transport poverty as it offers a personalized, flexible, and smart solution specifically targeted to meet the mobility needs of two of the most vulnerable categories of people in this sense: children and the elderly. In addition, every PickMeApp vehicle is equipped for the transportation of people with disabilities or with reduced mobility.

The principal elements that constitute PickMeApp costs structure are the start-up (including development and maintenance of the App), structural, fleet and personnel costs. On the other hand, the main revenues come from direct sales and from commercial affiliations. The users have to pay **4€ per single trip**.

Launched in September 2017, PickMeApp has obtained the following performance in the city of Potenza:

- Over 4,500 downloads of the PickMeApp Mobility App;
- Approximately 3,800 registered users on the App and 1,300 profiled travellers;
- Over 1,000 users have used the service at least once;
- Approximately 5,000 uses in 2017 and approximately 13,500 uses in 2018;
- 100 trips on average per day.

The advantages of the PickMeApp mobility solution are its door-to-door collective transport configuration that makes the service **very competitive** and personalised for the users and of course the IT elements that makes the service functioning in a smart and innovative way. Currently, the main limit is to **increase ridership** to combine more trips together thus increasing revenues and profitability of the service.

3.4.4 Uber (USA)



Uber provides **transport on demand through a driver-passenger matching platform**. The service is available through an App, whereas the platform connects demand with supply: passengers and drivers.

The service operates only in selected cities, and mainly in urban and peri-urban areas. It is not particularly targeting vulnerable user groups, although with competitive pricing and convenient use, it can bring mobility closer to those with lower income, living in rural areas, or with difficulties in communicating, since the service is available only through an App (provided in several languages). Nevertheless, in certain areas (where not regulated), Uber acts as a marketplace for non-professional drivers to make some earnings by providing transport service with their own vehicle, without owning a licence.

The service is very similar to a taxi service and is paid based on distance and time, nevertheless, there are two major differences: **the cost is estimated beforehand, and the final price (for the customer) and payment for the provided driving service depends on current supply and demand (dynamic pricing)**. Dynamic (and surge) pricing, based on

current demand and available supply, enables the platform to incentivise both sides of the platform. In cases of high demand, the prices are increased, more so if there is not enough supply at the given moment. At the same time, higher earnings are offered to drivers that are willing to provide their service in times of high demand and low supply. Such mechanism – surge pricing – helps to ensure the balance of demand and supply and therefore more reliable service functioning.

The service is used for immediate hailing of a vehicle, or scheduled pick-up and mainly in urban areas, but also for trips to nearby airports. Compared to a classical taxi service, the vehicle cannot be hailed on the street, but only using an App, setting the pick-up location and optionally also the destination. Upon confirmation of the available driver, the App shows to the waiting passenger the current status of the booking, current location of the vehicle and estimated time of arrival.

As of the end of November 2018, the service is available in more than 600 cities, in 65 countries. Each day, more than 15 million trips are completed, and so far, more than 5 billion trips have been completed worldwide. In total, there are 3 million drivers actively providing transport services for Uber's 75 million passengers.

Uber functions as a platform marketplace **with no asset's ownership**. Having the advantage of being one of the first services of this kind, Uber had **no need to deal with competition**, and therefore invested mainly in technology development and in promoting its service with incentives. The latter is also a reason for its low financial performance and the continuous need of additional funding. For every new city it launches, Uber faces the same chicken and egg problem and thus needs to undergo substantial subsidizing of drivers and passengers. So far, the total venture capital raised by Uber stands at \$24.2 billion, with Uber valuation at \$72 billion.

The main limit Uber was facing at the beginning were the cost of developing the technology, the cost of launching the platform marketplace and subsidizing both sides – the drivers and the passengers, high marketing costs and efforts to become recognisable. Also, a very important factor was the **creation of trust**. Uber is still **facing legal issues in certain markets**, where its status is not yet clearly defined, although on the European level it is seen as a transport provider and not simply an online platform.

3.5 New form of transport services based on sharing economy and community-based principles (Sharing)

The sharing economy allows a peer-to-peer-based activity by providing shared access to services. The principal goal of sharing mobility solutions is to provide a more efficient use of the means of transport.

The case studies considered in this domain are **Boleia**, a car-pooling platform in Portugal; **Bürgerbus Aichwald**, a citizen bus based on the community transport scheme; **Dörpsmobil**, an e-car sharing approach and an associated rental car service; **Taxi Colectivos Beja**, a collective taxi initiative in Portugal; and the **Village House Service Centre**, which is an example of a social innovation measure.

3.5.1 Boleia (Portugal)



Founded in 2013, Boleia is one of the most popular **carpooling platforms in Portugal**, developed by a small company named Lindoweb.Lda.

This platform currently assembles **over 15,000 registered people** and offers a sound mobility option for both long-distance and short/local

journeys. Boleia's online marketplace intends to facilitate the match between demand and offer, by connecting drivers and passengers willing to travel together and share the cost of the journey. Boleia distinguishes itself for not receiving any commission payment from the final users. Its business model is orientated towards big employers, cities and events with whom Boleia networks to offer a tailored platform where users can combine trips and decrease the financial burden of taking the car without sharing the costs involved.

The setup of this platform does not demand **a very rigid nor costly structure**. Currently, there are only two persons working on the platform. The main revenue sources are the production of car-pooling portals for big employers/cities/events and also some minor earnings usually resulting from online advertisings.

Communication is a crucial aspect behind the success of a platform such as Boleia. It is necessary to communicate with companies so that they can adhere to the portal and build a strong ride-sharing community. After securing companies, it is also necessary to communicate actively with people. It is necessary to inform citizens (that can either be clients, users or employees) how the platform works, to inspire confidence, to set up some incentives (e.g. those who share vehicle can park closer to the company for free) and to keep remembering them that the platform is available and how it works. **Building confidence** is at the cornerstone of car-pooling schemes.

Barriers to implementation concern cultural factors, that limit the take-up of this carpool scheme. The Portuguese culture respond negatively to sharing a vehicle with someone else. In addition to this, and somehow in relation to it, there is no overall political strategy for car-pooling in Portugal. Consequently, the number of users is increasing, but a slow pace. Another **meaningful limit** concerns **reaching out to the institutions**, a task that requires several marketing approaches that the company currently does not have available (they would need to generate much more income or have adequate support from official public institutions).

3.5.2 Bürgerbus Aichwald (Germany)

The German Bürgerbus (Citizen Bus) is a **community transport scheme** existing since 1985 that fulfils a complementary role in the public transport system and cater for situations of low demand. The Citizen Bus in the rural area of Aichwald (Aichschieß) in Baden-Württemberg, Germany is operated with drivers being volunteering citizens.



The service is operated 4 times per day (2 times in the morning 2 times in the afternoon) and there are currently 35 bus stops. The bus service can be used by everyone. The standard tariff is **1€/ ride**, children of up to six years and mobility impaired people can use the service for free.

Currently, the bus has on average **17.8 passengers per day**. The biggest passenger group (70%–80%) consists of elderly people. Senior citizens are in fact the dominating demographic group, with the share of children, commuters, homeworkers and tourists being more or less marginal.

Financial resources (sponsors, municipality, federal state), active promoters, support from the municipality and the transport operator and volunteers are required to implement and operate the Bürgerbus. The average operating costs per year amount to **16,000€**. Around 1,800€ are being covered by the fares, the rest is being compensated by around 80 sponsors. The costs for organizing the running business of the registered association (infrastructure, meetings, financial or other rewards for active members) amount to **2,600EUR/year**. These costs are usually being covered by member fees, but the federal state supports the Citizen Bus initiatives with up to 1,500EUR/year.

The formal operator is the **municipality** while the daily business is being managed by the BürgerBusverein Aichwald e.V., a registered association that has been founded to implement the Citizen Bus. In 2014, Werner Kamm, who also brought the Bürgerbus Aichwald to its implementation, again took the initiative and founded the Landesverband „proBürgerBus Baden-Württemberg e.V.“ to better advocate the interests of the Citizen Bus initiatives and to support smaller initiatives or initiatives in founding to implement their services. Werner Kamm, chairman of the BürgerBusverein Aichwald e.V., functioned as the main promoter during the phases of conceptualization and realization. However, his promotional campaign would not have been successful without the **active voluntary participation of the co-founding association members**.

The biggest limits of the initiative consisted in **motivating the mayor/ municipality**, and identified stakeholders to support the idea, and to overcome the bureaucratic hurdles (permissions). Especially, the last barrier required a lot of dedication and effort since it was at this time the first case the licensing had been confronted with.

3.5.3 Dörpsmobil (Germany)



Since 2016, the “Dörpsmobil” (Low German village car) is **an e-car sharing solution and an associated rental car service in Klixbüll in Germany.**

Jointly responsible for this, is the **commitment of Werner Schweizer, mayor** of the Schleswig-Holstein town of Klixbüll, who has implemented such a village car **together with engaged citizens.** With this service, an environmentally-friendly alternative to the own vehicle and a meaningful supplementary element in the rural mobility structure could be created.

The service is being used by **all members of the founding carrier organization** (registered association). These are inhabitants of Klixbüll and employees of local companies and the municipality as well. The user has to book his/her time slot via an entry in a simple online calendar. The members are using the car to drive to the next village (buying groceries, visiting friends, visiting the doctor, work trips by municipal representatives). The driving service brings persons to school, or the next public transport stop (bus station). Thus, the service is being used by people who do not want to / are not able to finance an own (e-)car, have no driving license or are mobility impaired.

For the individual user, the renting fee is **3.50€/h**. The costs are reduced with the number of people using the car at the same time.

The e-car has been **leased by the association.** The running costs are being compensated by the member fees and the payments for the car use. In addition, it is possible to request a ride by one of the voluntarily registered drivers. The critical number of members in this example is 20. However, tariff and member fees delimitation offer a certain flexibility. Nevertheless, the economic viability depends on the actual use. In the case of the Dörpsmobil, the municipality is an active member of the association and guarantees for a certain amount of use.

An **active participation of volunteers and the support of the municipality are strengths**, which allows to the project to be implemented quickly and with long-term success. It provides a complementary offer to public transport and partially formalized mobility services such as the citizen buses.

The biggest limit is to **motivate a critical amount of people to organize and use the service.** Experiences in other municipalities also show that it is important to receive support from the side of the municipality as active stakeholder but also as a user of the service guaranteeing a certain basic use.

to **some delays or no-shows** at the designated bus stop. This is something that ICT platforms could help easing.

3.5.5 Village House Service Centre (Finland)



Ilomantsi is a municipality located in the Eastern side of Finland, near the border with Russia. The municipality has a population of 5,024 and covers an extensive area (3,172 km², of which 409 km² comprise water). Population density is 1.82 inhabitants per km², which makes it one of the less densely populated areas in Europe.

In 2013, in this municipality, an initiative called “**Village House Service Centres**” was carried out, making use of not used local village houses and transforming them in order to

accommodate different services provided according to the requests of the local inhabitants, whose beneficiaries would otherwise have to travel to the central communities.

Services made available to the locals include **health-care services, hairdresser, foot care, various educational courses, events, small trips, food services and are provided by both small enterprises and municipal officials** (e.g. nurses from municipal health-care centres), none of which were available before the project has started. These services are available in the service centres, based on reservations made by the village inhabitants themselves.

The Village House Service Centres address the challenges stemming from outmigration and aging, as well as the fact that services have been relocated to larger centres a considerable distance away.

Signposting this initiative as transport-wise must be considered in its widest possible sense, to accommodate the **range of actions that prevent people from making additional journeys that could be better organized if the services come to the place where they live**. This Nordic pilot seeks to reduce transport needs by means of taking public and private services to the citizens, rather than in creating additional transport options.

This, however, should not be regarded as a standalone solution and ought to be better integrated with other existing options, because people usually have other needs that require transport solutions.

The project benefits from EU funding from the LEADER program and has also gathered other crowdsourcing funding streams. **Funding** received from the LEADER Programme allowed to employ a person in the municipal administration to coordinate the approach and develop it. The pilot has resulted from the **tight cooperation between the municipality, local people, local associations and businesses**.

The most important achievement was to **convince the local inhabitants to participate**, as they were disappointed for not having easily accessible services and sceptic about the good will of the municipality in overcoming this problem, feeling that their needs were disregarded for decades. The existence of active village associations is an important prerequisite for establishing service centres that follow this model.

Some limits have appeared though, more related with cultural attitudes than with institutional limits. In fact, the main difficulty relied in **generating trust** in the project necessary to activate people. This happened because of some negative attitudes caused by the general mistrust and a trend of disappearing services in the villages.

4 Cross-analysis and assessment of the case studies

In this chapter, the twenty case studies are assessed and compared to each other according to four main aspects:

- 1) their organisational and operational frameworks,
- 2) their business potential of the innovative solution and how it can be transferred to other regions,
- 3) their embedded technologies and interoperability rules (ICT solutions),
- 4) their social innovation.

4.1 Organisational and operational frameworks

The organisational and operational frameworks of the different case studies depend on the type of service, which are differentiated between public, private and community-based services.

The organizational structure defines how the responsibilities and tasks are allocated between the different stakeholders and how they are coordinated. The organization has an impact on the operation of the service and its structure allows to see how the different initiatives do their “business”.

The overall situation shows that a good coordination between different stakeholders plays an important role. Most of the services are publicly organized, having at least one public actor involved in the operation of the service. In many cases, these comes from the municipal level. Technologically innovative services rely strongly on actors of the private sector.

4.1.1 Publicly contracted mobility services

Publicly contracted services can either be delivered by public transport operators or can be directly organized and funded by public authorities.

The latter is for example the case for **Bummelbus**, which is an on demand bus in the municipalities in the North of Luxembourg, where a local non-profit association is the operator of the service and the state of Luxembourg is the main funder.

Almost the same service exists in the Province of Luxembourg (Belgium), where **Locomobile**, a door-to-door on demand bus, was established as a partnership between the municipalities and the Province of Luxembourg. The costs of this service are shared between these two actors.

Buurtkar, which is a mobile shop and service in the municipality of Bornem (Belgium), was launched by the municipality’s social department and a non-profit organization promoting social employment. Flanders provides significant financial and other support for social entrepreneurship that allows job creation for people who have problems to (re)access the labour market.

Another example is **Local Link**, which is the national brand for rural transport in Ireland. The National Transport Authority (NTA) has provided replacement for bus services in rural areas and these are managed by Local Link offices, which are composed of voluntary management committees. The NTA aimed at assisting the local offices not only with financial support but also with expertise and best practices.

Transport a la Demanda (TAD) in Catalonia is a demand-responsive transport scheme that shows a similar relation between stakeholders of the national/regional and local level. More than 200 services are supported with public funding by the regional government and by the mobility agencies at provincial level.

The Association of Catalan Municipalities for mobility and urban transport (AMTU), a group of freely associated local entities (98 municipalities and 3 county councils) of Catalonia, functions as an associated platform, which provides technical, legal and administrative support to its members for all the issues related to mobility. AMTU offers a centralised system for the management of TAD schemes and provides different mobility services. The association currently manages TAD schemes in ten municipalities. The well-established and simple organizational scheme is a key element of the service.

FlexTrafik offers a demand-responsive transport service in Denmark. Normally, the mobility governance and the responsibilities are held by local municipalities and regions. However, in this case, a specific law allows for the transfer of responsibilities to the public transit organizations (PTOs), which allow cross-border collaboration and coordination of mobility services. The PTOs manage the FlexTrafik services in accordance and collaboration with the participating authorities. Some of the flexible services are required by law, while others exist to supplement the traditional public transport services.

The public sector is the central supplier of transport services to citizens with special needs. The Danish municipalities and regions can decide if they want to choose PTO's to take care of the transport through local tendering. This service assembles and optimizes the DRT supply from multiple diverse providers and coordinates systems involving multiple organizations who supply and/or engage the transport service on behalf of their users. This service shows the importance of getting the various agencies dealing with transport at different jurisdiction levels (national, regional and county/municipal level) and coordinating to ensure coherence in policies, economies of scale and fair distribution of costs and revenues.

Another case study, which shows this cooperation between different stakeholders, is the **shared taxi service** in the municipality of **Beja** (Portugal). This service arose from a large interinstitutional agreement between the local public transport company, the municipality which steered all the negotiation process, the national authority for transport issues and seventeen private taxi owners.

The municipality succeeded to let develop a specific legislation, which allows to regulate the access to market to the municipalities, including the market organization and licensing of vehicles. Competences over taxis are divided between national and local authorities and the later ones have the responsibility to act as organising authorities, establishing, within their territorial jurisdictions, quotas for taxi services, parking regimes, special regimes, and the setting of the enforcement bodies.

Although the **Welcome to Berlin Ticket** is not a transport service, it allows to have reduced public transport fares for refugees in Berlin (Germany). The Berlin Senate decided together with the public transport operator to provide each refugee with a discounted 3-month

tickets allowing the refugees to use public transport. The initiative is run in close cooperation between the local and regional transport authorities and the municipal departments.

4.1.2 Market-based mobility services

The **market-based services** need to find innovative solutions to stay competitive so that their business results in a profit to the entity that owns or has invested in the means of providing the service. To this regard, technology does play a crucial important role. This can be observed from the following case studies.

Boleia, a private national-wide car-pooling platform in Portugal, has been developed by a company (Lindoweb.lda). The CEO and one programmer constitute the permanent staff of the company, besides eight investors. This allows to have low costs for the operations. The main revenues produced should come from companies which wish to develop a dedicated web portal. The most important thing is to communicate with other companies and citizens to sell the product. There is no regulation required. However, to stay competitive in the sharing economy it needs a long-range strategy.

Similarly can be considered **Uber**, which offers a platform marketplace for on-demand passenger transport service with no asset's ownership. This means that the company doesn't require a lot of money to put a venture into action. Uber owns the platform, however, it doesn't own the cars and the drivers. It takes one part of the revenue generated from the ride. At first it had to invest in the development of the technology, the cost for launching the platform and subsidizing drivers and passengers and high marketing costs. Uber had the advantage of being the one of the first service which offered this kind of service and which is available in many countries all over the world.

Pink Taxi is like Uber just that it is only dedicated to female passengers. It did not take advantage of any specific policies or subsidies.

GoOpti is a transportation marketplace start-up developed by three Slovenian entrepreneurs. It has (currently) contractual agreements with twenty-one franchisees in three countries (Slovenia, Italy, Croatia), who execute transport and may have subcontracting transport companies that can execute transfers on their behalf. This is particularly advisable for franchisees who either don't own many vehicles in their fleet or operate on the busiest routes. Partnership with other transport companies ensures reliability of transfers especially in high season. The franchise scheme allows a steady and profitable business and ensures that the standards of GoOpti are followed to make the business successful.

PickMeApp offers a door-to-door transport with online booking and payments within the municipality of Potenza and the city of Salerno (Italy). It was also created as an innovative start-up registered in the special section of the Italian business register and incorporated under the legal form of limited liability company. It is composed of a team of professionals with specific skills in the field of intervention. Several stakeholders like schools, recreational centres, nursing homes, specialized medical centres, shopping centres and gyms, but also local associations (i.e. of disabled people) act as demand aggregators and multipliers. Marketing and communication strategies are often linked to them.

Another App called **GoOV** supports independent travel with public transport in the Netherlands. It is composed of different technology companies in cooperation with public transport companies, politicians, municipalities, schools and taxi companies. GoOV was developed by three technological and social companies, which collaborate with partners

on technological innovations for people with disabilities and with public transport operators, which help by recommending and selling GoOV to municipalities and care institutions. GoOV is a lean organization. Management, sales and technical support are carried out by GoOV's own staff. All other services, like ICT trainers, are purchased through partners.

4.1.3 Community-based mobility services

In many cases, **community-based** services normally include ride-sharing (car-pooling), shared "village cars" and community transport services provided by non-profit entities funded by public actors.

Bürgerbus in Germany has a strong active participation of inhabitants. The citizen's bus service is operated by the municipality, however, the daily business is operated by a registered association, where drivers are volunteering citizens. The local public transport operator is the concession holder and must permit the operation of the citizen bus.

Dörpsmobil in Germany is a village e-car sharing service, which is based on a flexible operation model and is a non-profit association. The association consists of active participation of a larger number of inhabitants. The municipality is supporting the association financially for implanting charging infrastructures and infrastructures for the association.

Fairfahrt, a ride-sharing service of a small town in Hessen (German), has been initiated by volunteers and is strongly supported from the mayor. The municipality has the formal allowance to install the ride-request boxes in public spaces.

Another type of service is offered by the association **Fietsmeesters** in Utrecht (The Netherlands), which offers and organizes cycling courses for migrants. It is supported from the city of Utrecht by funding. In fact, it relies on the public participation and a strong network of volunteers.

The **Village House Service Centres** in Ilomantsi (Finland) allow a tight cooperation between the municipality, local population, local associations and businesses to set up a multi-service hub for the organization of several activities. This is the perfect example that several different stakeholders working on solutions together can have a big impact. The existence of active village associations is an important step for establishing service centres.

4.2 Business potential

To understand if an innovation has a certain business potential, it is important to know the achievements and limits of each case study. An important fact, which applies to each case study, is that it must be aligned to local conditions. These can be different geographical, cultural or economic conditions.

That said, services like **Bürgerbus**, **Locomobile**, **ZOOV**, **Bummelbus** can be implemented everywhere, where enough persons are available to refinance the resulting costs or where financial support from the municipality and/or government exists.

Moreover, a distinction between competitive and non-competitive services is necessary. If a company wants to make profit out of its service, it needs a sustainable budget and concept to stay on the market. It also depends on the number of competing companies. Especially small carpooling platforms grow at slow pace like **Boleia**. This can be due to the low trustworthiness people have of carpooling and the competition from incumbent companies like BlaBlaCar.

Another barrier is that in some countries, special regulations for sharing economy portals don't exist. In the case of **Boleia**, no clear enforcement is available. A better enforcement would smooth the deployment of the platform. In addition, the lack of a concrete national policy and a lack of a long-range strategy makes it difficult to compete with companies like for example Uber.

Uber, used by millions of users globally, has struggled to be adapted in other countries. Even if it already has a strong business potential, a specific city/region/municipality regulation could hinder its wider adoption.

In contrast to Uber, **PickMeApp** follows the Italian Law 21/1992, which defines the legal framework for both taxi and car-hire with driver services that are limited to vehicles used for the carriage of passengers, comprising not more than nine seats including the driver. The service functions in a smart and innovative way thanks to its IT element. Due to the fact that it is a marked-based service which needs to make a profit, the main challenge is to increase the usage of the App to be able to combine more trips together and to make it more profitable. The service is privately funded and revenues comes from direct sales. The potential to transfer it to another region is high because of a simple operational and scalable commercial model.

Pink Taxi has a strong competition by global players like Uber. In addition, no specific incentives nor policies have been put in place by local governments. It could be deployed in any city or region, however due to the limited user segment, it can only be sustainable in larger cities.

Transport a la Demanda (TAD) was created in Catalonia due to a favourable regulatory framework with a clear regional transport strategy. TAD have tried to integrate other mobility services like school transport, special needs transport and market-based services provided by transportation network, taxi or car sharing companies.

However, not all the stakeholders agreed. For example, the bus operators are not interested in transforming conventional bus lines into TAD because of the difficulties in managing these types of services and especially for the uncertainty of the revenues. In addition, taxi companies showed opposition to market-based transport services like Uber or similar. That's why it will be a challenge to develop a wider scheme and strategy where taxi drivers and bus operators don't perceive flexible transport as a threat.

The TAD scheme is trying to replicate the system developed by FlexDanmark for the management of **Flextrafik**. Its ability to coordinate as best as possible the various subsidized transport services makes it possible to increase the volumes and the likelihood that passengers will share the same vehicle and the vehicle occupancy rate.

Its success is due to the favourable regulatory and organizational environment of Denmark. It can be replicated everywhere, however, it is necessary to work closely with all the stakeholders and each of them needs to agree with the business model. It is important to count in more time to involve experts from many levels and areas. The Danish approach makes it possible to integrate and optimize travel needs and requests from other public authorities. TAD seems to have the best preconditions for transferability, however, formal agreements and an extension of the competences of provincial mobility agencies should be secured.

Another example of the needs of a strong regulatory system is shown by the initiative of **Local Link** in Ireland. This initiative should be replicated in countries with a good tradition of state intervention, regulatory framework and participatory engagement policies. However,

its replication is only possible in regions with a track record of participative initiatives. This initiative has been publicly contracted due to the absence of a market for conventional private operators. Funding of several departments of the state allow to built-up this initiative. However, to foster volunteerism is not an easy task.

One of **Taxi Colectivos Beja**'s main driver is the implementation in a vast territory with small and remote areas. To make the service more effective it is useful to have a fixed schedule so that people can use it as a reference for their trips. It seems to be critical to have a minimum of users to activate the journey. An affordable technology to manage the rosters of services but also to provide a good communication tool to the citizens and which could track the taxi, would facilitate the use of the service. This technology would be needed to allow the users to see where the taxis are circulating. A flexible fare could be introduced for people who share the taxi ride with others. This would lower the costs of shared trips.

GoOpti offers advantages for the users and carriers by offering an easy, reliable and convenient door-to-door transfer to the airport while carriers get the opportunity to launch new routes and become part of an international company. The service should be expanded to more rural and secluded towns and should dedicate the resources to the transportation of specific groups of people. However, this is one of the main challenges to create enough demand in these areas and then being capable of effectively bringing the service.

GoOV is very data oriented. It makes use of open data which keeps the costs low. It is possible to implement GoOV in other regions and countries when open data on public transport (also in real-time) is available. In The Netherlands, all transport operators are obliged to share their data. This is however not the case yet in each EU country. For the future, it will be possible to expand the service to users with physical disabilities.

Another technology-based App is the **Fairfahrt** service. The voluntarily commitment of the initiators and the support from the mayor allowed to build-up this service. The only challenge is to set up the technology and the stations. Especially for a community-based service like this it is not easy to finance all the equipment needed. It is economically viable; however, the business model needs to be aligned to local conditions.

The same can be said about **Dörpsmobil**, which was created by an active promoter inside a group of active inhabitants and the support of the municipality. However, the municipality is one of the main users and guarantees a basic utilized capacity. The low participation and weak utilization of the service challenges the running of the service. This type of service can be implemented everywhere, however, it needs enough persons available to refinance the resulting costs.

The **Buurtkar** doesn't bring people to the services but on the other hand brings the services to the people, taking away much of the need to travel. The Buurtkar does not compete, but rather collaborates with local producers and traders. It can be a solution for other municipalities as well to tackle the problem of shops and services disappearing from local communities. To transfer the Buurtkar's business model to other municipalities, the service must be adapted to the local context (e.g. size of municipality). Like **Locomobile** and **Bummelbus**, the Buurtkar promotes social employment and part of the employment costs is subsidized by the regional government.

The **Welcome to Berlin** and **Fietsmeesters** services allow migrants and ethnic minorities to be mobile. For these services to be operational, there is a need for public participation, strong network of volunteers and the support of the cities or municipalities. It is applicable

everywhere, where migrants or refugees receive a certain financial support from the municipality or a governmental authority. The challenge can be the coordination between different departments, public transport operators and other stakeholders which must agree on a solution and define a process for the implementation of the measure,

An active participation of different stakeholders is also needed for the **Village House Service Centre**. The existence of active village associations is an important prerequisite for establishing service centres, especially for the service provision for those living in settlements with scarce population. However, negative cultural attitudes (e.g. lack of trust) and a lack of cooperation between villages makes it less successful. A very flexible approach permits tailor-made solutions and is based on the informal solidarity that is still strong in rural areas and should be the backbone of new initiatives. In addition, combining different services is a good solution which reduces costs and saves resources.

4.3 Technology and ICT solutions

Enabling embedded technologies and ICT solutions increases the accessibility to the services and allows for interoperability. In fact, it upgrades the existing mobility services.

Fairfahrt is available through an App that users and drivers must download to be able to use the service. In addition, stations have been installed within the administrative boundaries of Romrod in Germany. To use the service, every registered user gets a chip, which needs to be put in front of the stations. It's an advanced way to hitch-hike, where financial support is needed to finance this technology. In addition, active persons are needed to construct and install the stations. Finally, the application and chips need to be set up.

Uber has the same concept as Fairfahrt by using a platform which connects demand with supply, so passengers and drivers. In comparison, the application is available in many cities around the world and is being used by millions of users. Drivers and passengers are located by the App and the passengers can follow the path of the car on the map. The prices are based on the current demand and available supply. It requires several investments rounds to develop this kind of world scale platform.

Boleia offers an online marketplace for carpooling to facilitate the match between demand and offer. In fact, Boleia consists in the development and fine-tuning of a website, where anyone can post an advertisement asking or offering a shared journey. In contrast to Uber, Boleia does not receive any commission from the final users. The revenue sources to finance these platforms are to produce carpooling portals for big employers and to earn money from advertising.

PickMeApp offers door-to-door transport with online booking and payments within the municipalities of Potenza and Salerno in Italy. The vehicles are traced by GPS. The bookings and shared routes are optimized by an algorithm in order to make journeys suitable. The application allows users to have a look at the precise pick-up time and the estimated arrival time. The optimization software is the core element of the whole system. In addition, a management software allows to collect data related to users and trips.

GoOpti provides innovative matching solutions for passengers who need a transfer between airports and smaller cities/towns. It utilizes a platform which provides a web page and a mobile App in which dynamic pricing and pooling, risk management, routing and payment transactions are incorporated. The online booking system, a key element, computes the demand and optimizes the occupancy of vehicles in order to achieve a lowest possible

price for the user and the highest yield for the carrier. The platform is constantly improved, and new technologies are continuously monitored in order to stay competitive.

FlexTrafik is based on a nation-wide ICT infrastructure (FlexDanmark) and assigns the requested trips to different transport operators and optimises them based on available vehicles, needs and convenience of the individual customer. One important part is that it can entirely coordinate the subsidized transport services and it uses an innovative software capable of selecting the best vehicle type. The core of the system is the FlexDanmark whose responsibility is to acquire, maintain and develop IT systems in support of FlexTrafik operations. However, the software has some computing limitations to design the optimal vehicle assignment and route selection.

GoOV supports a traveller step-by-step from door to door, with detailed route navigation and up-to-date dynamic public transport information. Travellers who need more guidance can be continuously monitored, passively or actively. The application supports various vulnerable groups in learning how to use public transport independently. The application uses various open data sources, which keeps the cost as low as possible. In The Netherlands, community buses in rural areas are also integrated, however, real-time data is not yet available for all the services.

4.4 Social innovation

Social innovation can be defined as *a new combination of social practices in certain areas of action or social contexts with the goal of better satisfying or answering social needs and problems than is possible based on existing practices [...]* (Butzin et al. 2017, 13).

In the case of HiReach, social innovation to reduce transport poverty for vulnerable groups includes practices and regulations that are developed and/or adopted by citizens, customers, politicians etc. to meet social demands and to resolve societal challenges in a better way than existing practices (Howaldt 2014, p. 3 in Butzin et al. 2017, 13).

In this respect, it is important to understand what the motivation and the aim of the concerned services was.

The Village House Service Centre of Ilomantsi is a nice example of a social innovation. The initiative seeks to reduce transport needs by taking public and private services to the citizens rather than creating additional transport options. In general, this service improves the quality of life for villagers by creating a local hub in a previously empty building, where service providers meet to develop their business. Providing a new service is not only one solution. The mobility needs of people are even met without the need to take them anywhere. If this is integrated with other options, it could be the best solutions.

The **Buurtkar** in Bornem is an important communication channel for the municipality. It aims to inform people about activities or new services. The Buurtkar functions as a meeting place that fosters social contact among residents. People who are less mobile can do their own shopping and choose what they want. By bringing these services closer to the people, the Buurtkar allows elderly people to live independently at home for as long as possible.

In general, all **community-based initiatives** which offer a flexible mobility service in rural areas and fill in the gaps of non-available public transport can be defined as a social innovation.

At the same time, mobility services for people with reduced mobility and other vulnerable groups are part of social innovation too. These services are complementary to public

transport by offering specialised services to elderly people or people with disabilities. They increase the accessibility and affordability for these people.

The citizens' bus **Bürgerbus** is one example, which reduces transport poverty of elderly and/or mobility-reduced people.

Shared car usage like peer-to-peer car-sharing or carpooling allows to use cars without spending too much money for a car. **Dörpsmobil** allows users to rent a car or to arrange that participating drivers are picking the users up from a certain place. It aims to be an environmentally friendly alternative to the own vehicle and supplementary element in the rural mobility system.

A very specific case of social innovation is gender-sensitive transportation which focuses on transportation needs mostly of women. This complimentary service to public transport allows to increase safety and comfort of traveling women. **Pink Taxi** has been developed to tackle the problem of sexual harassment and assault in taxi cars.

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5 Summary and conclusions

This chapter summarises the findings of the review of existing initiatives by listing the advantages and limitations of each case study. Also, the business potential and degree of transferability of each selected mobility solution is assessed. Finally, it is explained how the achievements of D3.2 will feed the next steps of WP3.

5.1 Advantages and limits of the selected case studies

This deliverable reviewed existing services, initiatives, business cases, and innovative solutions from both public and private entities, which give way to inclusive mobility systems.

Twenty case studies of innovative transport solutions were selected to understand their advantages and their limitations. In addition, they have been assessed and classified based on a series of innovation domains.

The following table summarises the advantages and key drivers, as well as limitations and barriers for each case study.

Table 5-1: Main findings: advantages and limitations of the case studies

CASE STUDY	TYPE OF SERVICE	ADVANTAGES AND KEY DRIVERS	LIMITATIONS AND BARRIERS
1. Boleia	Ridesharing/Carpooling platform	<ul style="list-style-type: none"> • Communication strategy and tools for companies and citizens to secure trust and build confidence within the community • Flexible enough to be customised to local needs and requirements. • It can be set-up with a flexible and low-cost structure • Absence of strict regulations affecting the service 	<ul style="list-style-type: none"> • Absence of a national policy that can leverage the sharing economy among big employers (i.e. mandatory corporate travel plans) • Lack of continuous commitment by local authorities on customised city/region platforms • Efforts needed in order to secure clients (companies and public entities) and expand the platform (commercial activities) • Local cultural factors
2. Bummelbus	On-demand bus driven by	<ul style="list-style-type: none"> • Opportunity to coach, support and occupy long-time unemployed people as drivers 	<ul style="list-style-type: none"> • Need of a public funding scheme and integration with employment strategies

CASE STUDY	TYPE OF SERVICE	ADVANTAGES AND KEY DRIVERS	LIMITATIONS AND BARRIERS
	unemploy ed	<ul style="list-style-type: none"> • Flexible service allowing people to travel safely from one place to another at reasonable cost • Permanent funding allowing sustainability of operations • Combination of multiple funding sources (public and private, i.e. sponsors and advertisements) • Work on a not-for-profit basis 	
3. Bürgerbus Aichwald	Communit y bus	<ul style="list-style-type: none"> • Financial drivers are donations, sponsors, advertising partners and public funds (minimum subsidies) • Not-for-profit/community-based • Flexibility of the operational model • Operated on a license-free basis • Active participation of local inhabitants (drivers being volunteering citizens) • It can be set-up with a flexible and low-cost structure 	<ul style="list-style-type: none"> • Need of committed local authorities to overcome overcoming the bureaucratic hurdles (permissions) • Need of a strongly committed coordinator and a group of active citizens
4. Buurtkar	Mobile shop and social service	<ul style="list-style-type: none"> • Uniqueness of the service because of its ability to combine the social and commercial aspects into one service • The social aspect is crucial and it is given a lot of emphasis on having 	<ul style="list-style-type: none"> • The system required long preparation time as it didn't exist any other concrete example to follow or to learn from, and partners needed to be found.

CASE STUDY	TYPE OF SERVICE	ADVANTAGES AND KEY DRIVERS	LIMITATIONS AND BARRIERS
		<p>motivated drivers, who care about the clients personally</p> <ul style="list-style-type: none"> • Strong cooperation with local producers and traders to offer high quality, healthy, and local products • Subsidies helped to finance the initial investments and the municipality was closely assisted by social innovation groups 	<ul style="list-style-type: none"> • People still are reluctant to share personal issues
5. Dörpsmobil	Community car	<ul style="list-style-type: none"> • Flexible operational mode. • Active participation of local inhabitants and strong financial and organizational support by the municipality • Financial support to implement the charging infrastructure 	<ul style="list-style-type: none"> • Motivate a critical amount of people and push them to use the service • Municipality should not only support financially the service but also use it in order to guarantee a certain basic usage
6. Fairfahrt	Ridesharing platform	<ul style="list-style-type: none"> • Strong commitment of the project founders • Initial support by the municipality and promotion of the fundraising to cover the investments costs 	<ul style="list-style-type: none"> • Difficulty in developing the technical infrastructure • The service was seen as a possible competitor of public transport operators
7. Fietsmeesters	Cycling training programme	<ul style="list-style-type: none"> • Leveraged a world-scale event (Tour de France) to promote and launch the initiative, which obtained good media coverage • Strong network of volunteers that are actively involved in the initiative 	<ul style="list-style-type: none"> • Ability to secure the necessary funds to run and maintain such initiative

CASE STUDY	TYPE OF SERVICE	ADVANTAGES AND KEY DRIVERS	LIMITATIONS AND BARRIERS
		<ul style="list-style-type: none"> Strong support from the city, which entirely sponsors the initiative 	
8. FlexTrafik in Denmark	Demand-responsive transport scheme	<ul style="list-style-type: none"> Technology platform that enables to dynamically assemble the supply of demand-responsive transport services from a large pool of different providers Software capability of selecting the vehicle that will perform the trip based on its cost-efficiency Ability to coordinate as much as possible the various subsidized transport services to increase the volume of travel to be treated 	<ul style="list-style-type: none"> Technical challenges due to computing limitations of the software Economic challenges linked to the procurement process for both the platform and the operators Institutional challenges due to the coordination between different agencies and for a fair distribution of costs and revenues
9. GoOpti	Shared airport transfers (ride-hailing service)	<ul style="list-style-type: none"> Flexibility, affordability, and reliability of the service Backbone of the successful model is represented by the IT platform with its smart revenue management pricing to allow execute the service in a profitable way also on less frequently travelled routes Advantages for both passengers and drivers through the usage of the platform Non-restrictive requirements to join the platform that allow many independent operators 	<ul style="list-style-type: none"> Ability to create enough demand in the most rural or secluded areas in order to sustainably offer the service

CASE STUDY	TYPE OF SERVICE	ADVANTAGES AND KEY DRIVERS	LIMITATIONS AND BARRIERS
		to enlarge the service's fleet	
10. GoOV APP	Public transport smart travel assistant	<ul style="list-style-type: none"> • Training session to create a sense of trust • Travel advice continuously adapted to the specific user position • Availability of funds from multiple sources to help financing the start-up project • Extensive use of open data to keep costs as low as possible • Clear awareness of the service cost for the users 	<ul style="list-style-type: none"> • Convincing users to change travel behaviour and switch from taxi to public transport is a tough challenge • Municipality should go one step further and actively promote the service and offer incentives to use it
11. Local Link	Rural transport scheme	<ul style="list-style-type: none"> • Political endorsement capable of developing a suitable regulatory framework and to integrate rural transport in the overall public transport system • Absence of a market for conventional private operators • Participative network to support local offices in preparing local transport plans • Good level of interaction with local authorities • Public transport authority's commitment to assure compliance and standardization of transport planning, modelling, mapping, and ticketing 	<ul style="list-style-type: none"> • Fostering volunteerism in the provision of transport within different catchment areas

CASE STUDY	TYPE OF SERVICE	ADVANTAGES AND KEY DRIVERS	LIMITATIONS AND BARRIERS
12. Locomobile	Social taxi	<ul style="list-style-type: none"> • Basically no competition and people strongly depend on the service • Non-profit and community-based approach with strong support from the public administration • Funding from the province to compensate the differences between revenues and costs • Offers jobs and training to people who have been long-time unemployed 	<ul style="list-style-type: none"> • Keep the budget sustainable as the demand increase and additional investments, commitments and partnership need to be found
13. PickMeApp	Ride-hailing service	<ul style="list-style-type: none"> • Door-to-door configuration that makes the service very competitive and personalized for the user • IT elements that make it functioning in an innovative and smart way • Real time tracking function that allows parents to check the positioning of their children (or elderly) 	<ul style="list-style-type: none"> • Need to increase ridership in order to combine more trips together and escalate profitability of the service
14. Pink Taxi	Marketplace platform for women-only taxi services	<ul style="list-style-type: none"> • Leveraged on the fact that female passengers, while using traditional means of transportation, are often the target of harassments, and created a service whose primary goal was to ensure confidence and trust 	<ul style="list-style-type: none"> • Necessity to attract female drivers (not always very easy) and create visibility among a very narrow target group
15. TAD in Catalonia	Demand-responsive	<ul style="list-style-type: none"> • Favourable regulatory framework with a clear 	<ul style="list-style-type: none"> • Integration of certain demand-responsive

CASE STUDY	TYPE OF SERVICE	ADVANTAGES AND KEY DRIVERS	LIMITATIONS AND BARRIERS
	transport scheme	<p>regional transport strategy</p> <ul style="list-style-type: none"> • Presence of a well-established and simple organisational schemes, and of innovation IT system • The diversification of TAD services in operation to meet the real needs and resources of local entities and communities 	<p>services into the public transport fare system</p> <ul style="list-style-type: none"> • Develop a wider scheme and strategy where taxi drivers and bus operators don't perceive flexible transport services as a thread
16. Taxi Colectivos Beja	Shared taxi	<ul style="list-style-type: none"> • Strong interinstitutional commitment during the first implementation period • Service operating in areas where public transport would be much more inefficient 	<ul style="list-style-type: none"> • High number of trips performed with zero passengers on board • Rigidness in the service that derives from the historical agreement with the taxi operators • Absence of an ICT solutions to make the service more efficient
17. Uber	Ride-hailing service	<ul style="list-style-type: none"> • Capability of matching travel demand of passengers with the drivers that are able to provide the requested service • Dynamic and surge pricing, based on current demand and available supply, that enables the platform to incentivize both drivers and passengers, ensure balance of demand and supply, and offer a more reliable service • App available worldwide that offers a good and 	<ul style="list-style-type: none"> • Legal issues, especially with the taxi industry that constantly battles Uber's status and its disruptive effect on the transportation industry enabled by lack of regulation • During the start-up phase, the service had to deal with lack of trust, lack of drivers and passengers, and high investments/costs of subsidizing • In several cities, the service is banned and strongly opposed by the competing services

CASE STUDY	TYPE OF SERVICE	ADVANTAGES AND KEY DRIVERS	LIMITATIONS AND BARRIERS
		straightforward user experience <ul style="list-style-type: none"> • Big data analysis based on completed trips to enhance dynamic pricing, route planning, and travel time estimation services • Driver and passenger rating that ensures high service quality • Constant addition of new and innovative functionalities 	
18. Village House Service Centre	Community service centre	<ul style="list-style-type: none"> • Tight cooperation between the municipality, local people, local associations, and business • Identification of the service to ensure that they correspond to citizens' needs • Presence of an active village association 	<ul style="list-style-type: none"> • Initial difficulty in generating the necessary trust into the project • Lack of the necessary cooperation between villages
19. Welcome to Berlin Ticket	Public transport social ticket	<ul style="list-style-type: none"> • Presence of active citizens, politicians advocating the interest of refugees • Close coordination between the public transport authority and the municipal departments 	<ul style="list-style-type: none"> • Different municipal departments, public transport operators and other stakeholders had to agree on a solution and define a process for implementation of the measure
20. ZOOV	Demand-responsive transport scheme	<ul style="list-style-type: none"> • Punctuality and quality of the drivers operating the service • The program is subsidized by the government which 	<ul style="list-style-type: none"> • To be able to offer a door-to-door service, the service had to obtain the permit to drive in

CASE STUDY	TYPE OF SERVICE	ADVANTAGES AND KEY DRIVERS	LIMITATIONS AND BARRIERS
		guarantees a good service for a reasonable price for the passengers <ul style="list-style-type: none"> Effective planning and efficient execution of the transport service 	pedestrian areas, which was very complicate <ul style="list-style-type: none"> At the beginning, coordination of the tasks (planning and execution) between the different stakeholders was not clear at the beginning

Source: Own elaboration

From the table above, it becomes see that for several cases where there is a potential to improve the service based on their advantages and thus overcome some of the limitations highlighted.

The **advantages** include a strong interinstitutional commitment, which means that the coordination is successful between stakeholders from different sectors or different levels. The presence of well-established and simple organisational schemes allows to implement a successful initiative. Sometimes a strong regulatory system is needed to run a “business”, however, this depends on the country and its system. In many cases, no regulation is required.

Another important factor is the voluntarily commitment of the initiators of an initiative. To implement a successful initiative usually it is necessary just one active promoter inside a group of active inhabitants to make it happen. Especially if this is supported (financially or other) from a city, a municipality or even the national government. The introduction of IT systems makes the service's functioning in a smart and innovative way. In many cases, the instalment of an application facilitated the running of the service. To create a flexible operational model, enough to be customized to local needs and requirements, is an important asset.

Concerning the **limitations** of the case studies, to convince people to use different mobility services than public transport or their own car is a difficult task. Another limit is to increase the usage of the service to make it more profitable. This is especially the case for private companies, which rely on a high number of users to make a profit, in contrast to public services or community-based services which normally get funded.

However, getting funds from a public authority is not always self-evident. In addition, if many stakeholders are involved it is harder to coordinate all the operational tasks. Another challenge is the technology, especially if a service wants to be more innovative it needs experts and resources to install the technological equipment.

5.2 Business potential and degree of transferability

The advantages and limitations mentioned above give a hint on the services that could be transferred and exploited in other contexts.

To this regard, the following table explains the business potential and the degree of transferability of each case study.

Table 5-2: Business potential and degree of transferability of the case studies

CASE STUDY	TYPE OF SERVICE	BUSINESS POTENTIAL	DEGREE OF TRANSFER ABILITY
1. Boleia	Ridesharing/ Carpooling platform	<ul style="list-style-type: none"> Scaling up this kind of platform to other contexts seems to be straightforward, should some preconditions be in place, including the sharing culture of the target population No technical impediments for deploying the platform in a new context or a new market segment Flexible enough to be customized to local needs and requirements, where transportation networks are less dense 	High
2. Bummelbus	On-demand bus driven by unemploye d	<ul style="list-style-type: none"> If permanent funding and integration with employment policies are secured, the service can have a big potential especially in rural regions 	High
3. Bürgerbus Aichwald	Community bus	<ul style="list-style-type: none"> The service can be implemented wherever there is enough persons that could use the service and the framework conditions are available to organize/refinance the resulting costs, including public subsidies and multiple sponsors 	High
4. Buurtkar	Mobile shop and social service	<ul style="list-style-type: none"> This initiative could be a solution for other municipalities as well to tackle the problem of local shops and services that are disappearing. However, the local context must carefully be taken into account for a tailored approach 	Medium
5. Dörpsmobil	Community car	<ul style="list-style-type: none"> The service can be implemented somewhere else as long as there are enough users available to refinance the resulting costs Specific legal and regulatory conditions or indirect subsidies by reduced taxes can 	Medium

CASE STUDY	TYPE OF SERVICE	BUSINESS POTENTIAL	DEGREE OF TRANSFER ABILITY
		be the decisive parameters to consider for a successful implementation of the model.	
6. Fairfahrt	Ridesharing platform	<ul style="list-style-type: none"> The service can be implemented everywhere with enough support and spirit of initiative by a coordinator. Once the service has been implemented, the necessary effort and the required funds to maintain the service are comparatively low 	Medium
7. Fietsmeesters	Cycling training programme	<ul style="list-style-type: none"> Transferability could be possible in other cycle-friendly countries, with a certain easiness in recruiting enough volunteers 	Medium
8. FlexTrafik in Denmark	Demand-responsive transport scheme	<ul style="list-style-type: none"> The system's success was possible thanks to the favourable and integrated regulatory and organizational environment at multiple levels. Should the service be replicated, it is necessary the creation of a single authority in charge of the multiple aspects (call for tender, selecting the carriers, logistics, payments, etc.) To deploy the service in new markets, an upgrade of the software to dynamically configure the service is necessary in order to implement demand-adaptive services 	Medium
9. GoOpti	Shared airport transfers (ride-hailing service)	<ul style="list-style-type: none"> The model can be easily replicated elsewhere in order to guarantee a reliable door-to-door transportation solution wherever scheduled transit fail to deliver its services The main potential resides in the system's ability to expand its service to sparsely populated/low-demand areas. However, this would require local authorities to support the pilot activities and platform upgrades 	High
10. GoOV APP	Public transport smart travel assistant	<ul style="list-style-type: none"> Possibility to implement the service in other regions and countries, provided that open 	Medium

CASE STUDY	TYPE OF SERVICE	BUSINESS POTENTIAL	DEGREE OF TRANSFER ABILITY
		data on public transport (also in real-time) is available	
11. Local Link	Rural transport scheme	<ul style="list-style-type: none"> Potential to replicate the system in places where the transport authority and/or regulator applies a robust oversight reporting system of the current transport services. An authority ensuring that rural transport is comprehensively linked and integrated with public transport services is mandatory though Improvement in the current technological knowledge is needed if the system aspire to manage a more complex system, also including non-traditional transport services Replicability is strictly linked to certain preconditions, that include strong political endorsement and large participative engagement 	Medium
12. Locomobile	Social taxi	<ul style="list-style-type: none"> The service can be replicated elsewhere, provided that enough funding is available. The service can have a big impact especially in rural regions where innovative solutions could be deployed 	High
13. PickMeApp	Ride-hailing service	<ul style="list-style-type: none"> Good opportunity to expand into additional market segments, such as publicly-contracted services linked to special needs The simple operational and scalable commercial model associated with low initial investments to start the project has a good chance to be replicated somewhere else 	High
14. Pink Taxi	Marketplace platform for women-only taxi services	<ul style="list-style-type: none"> Such service could be deployed in other places, but as long as it targets a very specific customers group, it might only work in very large cities Global players (e.g. Uber) might prevent the success of smaller and "niche" services 	Medium

CASE STUDY	TYPE OF SERVICE	BUSINESS POTENTIAL	DEGREE OF TRANSFER ABILITY
15. TAD in Catalonia	Demand-responsive transport scheme	<ul style="list-style-type: none"> Potential to improve the optimization platform integrating all forms of available public transport and capable of managing trips requests in real time, apply dynamic routing and e-payment. In this sense, the design of an open IT system is necessary Integrate other transport segments, including special needs services and school 	Medium
16. Taxi Colectivos Beja	Shared taxi	<ul style="list-style-type: none"> It is fundamental to integrate an affordable technology backend structure to manage the rosters of services and provide a good communication channel to the citizens Potential is linked to the fact that the business model could be revised and framed under the national law enabling the functioning of flexible public transport as part of the public transit system 	Medium
17. Uber	Ride-hailing service	<ul style="list-style-type: none"> Uber has already a global market. Specific regulations could hinder its wider adoption Ambition to make Uber the marketplace for multiple transportation services 	High
18. Village House Service Centre	Community service centre	<ul style="list-style-type: none"> Low-cost solution and firmly-rooted within the community, that could be easily replied in several other locations, especially considering the challenges in delivering services to an isolated and increasingly aging population It is important to consider that the project was successful in a country with high levels of social participation and employment rates. A similar approach might require higher involvement from the local authorities and associations somewhere else 	High

CASE STUDY	TYPE OF SERVICE	BUSINESS POTENTIAL	DEGREE OF TRANSFER ABILITY
19. Welcome to Berlin Ticket	Public transport social ticket	<ul style="list-style-type: none"> The initiative could be replicated anywhere refugees receive a certain financial support from the municipality or governmental authority 	High
20. ZOÖV	Demand-responsive transport scheme	<ul style="list-style-type: none"> The system can definitely replicated elsewhere, provided that it is adapted to the local conditions and regulations Similar services already exist in many other place. However, the innovative aspect resides in the possibility to combine different forms of transport 	High

Source: Own elaboration

Most of the case studies **have the potential to be replicated somewhere else, however, they need to be adapted to the local conditions** (size of administrative area, resources available, culture, etc.). Some services can be successful in one region, but this doesn't mean that the same type of service will be successful in another place.

Implementing an initiative in sparsely populated regions, where public transport doesn't exist or it is not efficient, can have a big potential, because people rely on it and there is no big competition, especially if the service is expanded to other services (school or special needs transport).

In addition, **permanent funding** allows a service to stay competitive and to run a sustainable business. Especially, financial support from local governments allow services to run a sustainable business. Moreover, specific (local, regional or national) regulations can facilitate the implementation of the service.

An important factor, not only for community-based services, is the **participatory engagement**. Even with only one person, a successful initiative can be initiated and implemented. If several different stakeholders are involved, it needs a good coordination of tasks and all the stakeholders need to agree.

5.3 What is next?

The work done under **Task 3.2** (Analysis of case studies and best practices), which is reported in this Deliverable, provides relevant building block for the subsequent activities in HiReach WP3 (Identification of mobility options and business models).

First of all, the identified organisational and operational frameworks of selected inclusive mobility solutions will be further analysed in **Task 3.3** (Identification of organisational and operational frameworks for inclusive mobility solutions).

Task 3.4 (Generation of new mobility solutions and business models) will then involve a diversity of stakeholders to generate at innovative mobility solutions and business models,

based on the review of existing solutions. A multidisciplinary brainstorming workshop will be organised with a number of stakeholders and experts, including passengers' representative organisations, operators, public authorities and business/start-ups, with the ambition of finding right solutions for the right market for more inclusive mobility solutions.

Within **Task 3.5** (Appraisal of mobility solutions and their potential impacts on inclusive mobility and equity), the identified innovative transport solutions will be assessed to understand to which degree these innovations might ease the mobility of the vulnerable user groups targeted by HiReach. The acceptance of the innovative solutions from the specific social groups, the change in behaviour and the expected impacts on inclusive mobility and equity will be estimated.

The final task of this work package (**Task 3.6**, Analysis of drivers and barriers to the development of new mobility solutions) will analyse the existing barriers (social, technical, environmental, legal and institutional) to the development of innovative solutions.

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References

Ravetz et al. (2013). "The Dynamics of Peri-Urbanization". Springer editors

Frey W. H. & Zimmer Z. (2001). "Defining the city". LN Ronan Paddison, Handbook of Urban Studies

[Note: references related to each case study are reported in Annex 1 in the concerned section]

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Annex 1: Case study descriptions

Case studies	
1. Boleia	11. Local Link
2. Bummelbus	12. Locomobile
3. Bürgerbus Aichwald	13. PickMeApp
4. Buurtkar	14. Pink Taxi
5. Dörpsmobil	15. Transport a la Demanda in Catalonia
6. Fairfahrt	16. Taxi Colectivos Beja
7. Fietsmeesters	17. Uber
8. FlexTrafik in Denmark	18. Village House Service Centre
9. GoOpti	19. Welcome to Berlin Ticket
10. GoOV APP	20. ZOOV

Structure of the case study descriptions	
Fiche	Logo, country, contact details
Overview	Description of the service
	Usage of the service
	What facilitates the running of the service
	Performance on transport poverty reduction
	Resources used
	Specific legislative, regulatory, and organizational environment
Good practices elsewhere	
Critical analysis on business potential	Potential market segments
	Potential of transferability
	Deployment in the new market segment
References	Literature and web references

1. Boleia

	
Type of service	Ridesharing/Carpooling platform
Country	Portugal
Address	Rua Arquiteto Lobão Vital, n.º244, Porto (PT)
Website	www.boleia.net
Email	contato@boleia.net

Overview

Description of the service

Carpooling is when two or more people travel together by car for all or part of a journey. Driver and passenger(s) know before leaving that they will share at least part of the trip, with this arrangement made using a coordinating body. Boleia.net arises in this scope as an **online marketplace for carpooling**, which intends to facilitate the match between demand and offer, by connecting drivers and passengers willing to travel together and share the cost of the journey.

The web portal Boleia.net was funded in Portugal in 2013 by the newly emerged company Lindoweb.Ida, that has scaled up the business and become today the second biggest carpooling platform in the country, right after BlaBlaCar, in terms of number of people who use it.

Boleia.net consists in the development and fine-tuned of a website initially built and launched in Hungary, where the company CEO was working before 2013. The website in Hungary is still online and available (<http://www.autosztunk.hu/>), but has not received so many updates as the Portuguese one, where the company has been focusing on.

Nowadays, Boleia.net comprises not only the overall website where anyone can post an advertisement asking or offering a shared journey, but also a **dedicated corporate portal** tailored to companies that have less than 50 employers, a **portal for matching car trips to and from events** and one **platform customised for municipalities**.

Usage of the service

There are 15,000 people with active registration in the four portals of Boleia.net. It was noted by the CEO that some foreigners usually register themselves and look for carpooling options for leisure journeys around the country.

It is worth mentioning that there have been almost no negative experiences in the past five years.

What facilitates the running of the service

Communication is clearly the key driving force behind the success of a platform such as Boleia.net. This communication can be conceptualized in two different levels. It is necessary to communicate with companies so that they can adhere to the portal and **build a strong ride sharing community**. After securing companies, it is also necessary to communicate actively with people. So, it is not only a matter of signing a contract. It is necessary to inform citizens (that can either be clients, users or employees) how the platform works, to **inspire confidence**, to set up some **incentives** (e.g. those who share vehicle can park closer to the company for free) and to keep remembering them that the platform is available and how it works.

In some countries and among some social layers there is an underlying resistance to share vehicles with someone unknown. To tackle this problem, which is a severe bottleneck for a shared mobility policy, Boleia.net offers several communication tools that can generate confidence. It is all about feeling safe with the option. This is why the company can provide **information about where the driver or the passenger works**. If they are working in well-known companies or institutions, this will inspire confidence, which is a precondition to share vehicle with someone who is not an acquainted. The platform also allows people to **evaluate the persons with whom they can share the trip** and provide all the necessary tools for people being comfortable with their choice (allowing them to **contact them in advance**, for example, to understand if they are compatible). These tools act as a mind shift and a turning point on the way people conceive the possibility to share the trip with others and can lead people to adhere and try the service.

The main barrier to implementation concerns the lack of a wider strategy that can leverage the sharing economy among big employers and that could foresee the role that carpooling could play in producing energy savings. Should **corporate mobility plans be mandatory**, this legal framework would certainly smooth the work of companies such as Boleia.net.

The lack of a concrete national policy is one of the reasons why some initiatives fail to become mainstream. The CEO of Boleia.net has mentioned that **the results of the dedicated platform, that was set up for Guimarães, were disappointing** because it was driven by the will to apply for the green capital of Europe in 2020, but no follow up campaigns were taken forward by the municipality of Guimarães. The uptake of carpooling initiatives requires continuous communication and active engagement from the client, otherwise they would be pointless. In this case, the municipality of Guimarães could give the example and promote the portal among the civil servants themselves, but they haven't, and this lack of commitment is regarded as a downside. So one can conclude that car-pooling platforms do not yet rank very high on the political agenda in Portugal.

Due to the lack of the above-mentioned strategy it is up to the company Boleia.net itself to reiterate the benefits for the companies to join a car-pooling platform, where their employees can share rides and costs involved with commuting trips. This requires qualified men-power to perform a very time-consuming task. Establishing connections with big employers is a hard effort and the company has very limited resources to perform this task.

Performance on transport poverty reduction

Even if private companies usually do not disclose exact numbers about the business they run, it has been found out that Boleia.net does not regularly collect any key performance

indicators besides the exact number of people with a registration and the total number of paths offered. When necessary, and required by a client, some online surveys are conducted, but this is not a frequent requirement and the results were not shared with the case study authors.

As a consequence, the company does not know in detail the type of people, who are using the service. When registering, only information about the name, email, city and gender is retrieved. In terms of gender split, it was noted that it is more or less equal, with a 55% share of men using the platform. It was also pointed out by the CEO that, unlike what could be thought¹, **women normally do not constitute a minority** of those who are demanding or offering ridesharing.

Regarding the contribution to significantly reduce vulnerability of other social groups that could suffer from transport poverty, it can be mentioned the case of a user, who was interviewed by a local television channel and whose video is available on the Boleia.net webpage. This citizen must commute regularly for a long-distance and said that he would have to quit his job², if he didn't share the vehicle and the trip-related costs through the platform.

Resources used

Boleia.net arose from a rather small-scaled project. There are eight investors and one CEO, who is the only one working permanently in the initiative plus one programmer/IT developer who works for the company when needed.

One can also estimate that, once the initial investment has been incurred, **the cost structure for operations should be very light**. Planning and management of the platforms should consist in a fixed fee for maintaining the websites. Wages of the CEO and the developer should be strictly linked to any new contract signature with big companies (success-fee like).

Using an educated-guess based on the testimonial of the CEO, **the main revenues** produced by the business activity **should come from companies and events** that wish to develop a dedicated web portal for people to share their rides. Another source of income is generated from publicity, namely **advertisement on the main web portals**.

Specific legislative, regulatory, and organizational environment

No regulation is required for companies or entities wishing to offer a platform where citizens can combine trips and minimize costs. Even if the main portal works independently and is open for everyone, Boleia.net typically seeks **commercial contracts with municipalities and private companies for developing tailored services**.

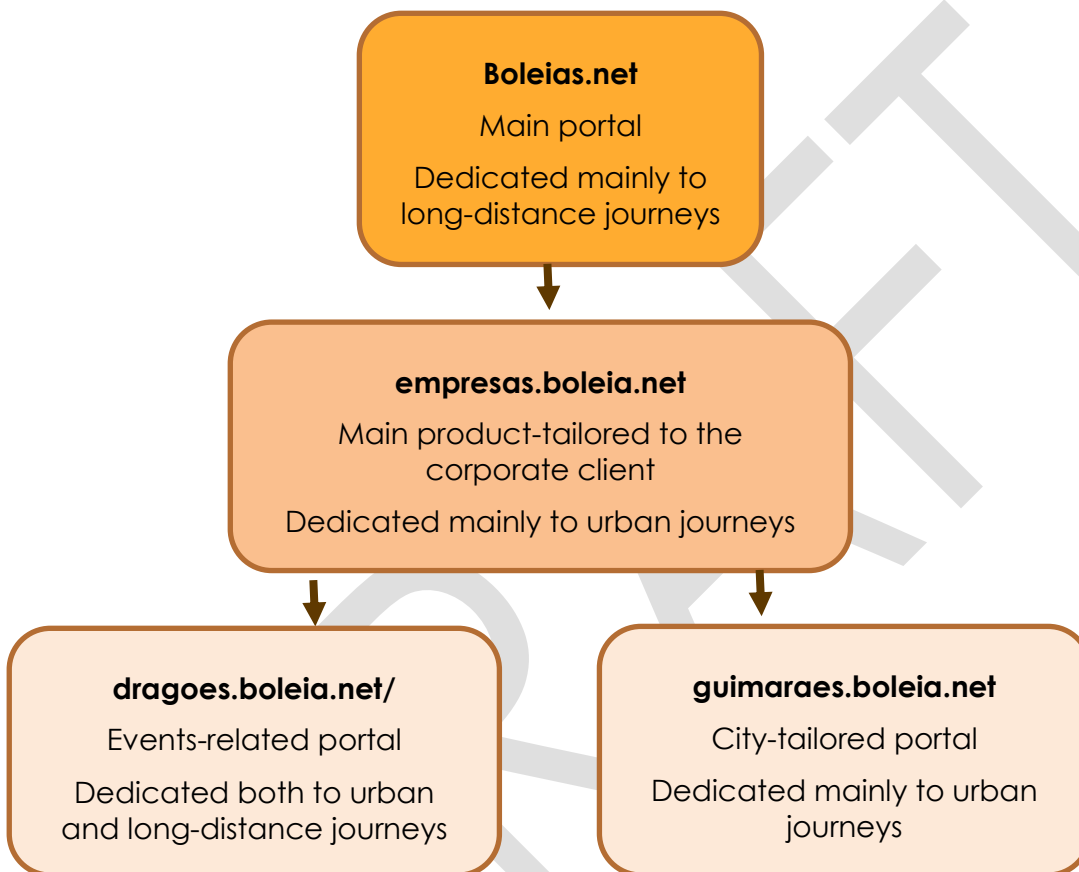
Currently, Boleia.net is the main portal of a business split into four different products. The corporate-oriented website *empresas.boleia.net*, is offered to companies wishing to join

¹ See for example the minutes from the HiReach fieldwork with the focus groups in Guarda (Portugal), where women revealed some concerns about with whom they will be sharing a vehicle with.

² It is equally important to recall that this topic was mentioned during the HiReach focus groups organized with unemployed people in the city of Guarda (Portugal). The case of a young girl, who could not secure an internship opportunity due to travel expenses that she could not have cope with herself, was mentioned.

and offer their employees a portal for finding other colleagues that can share their vehicles. Boleia.net offers free access for companies to this portal, if they have less than 50 employees. Those with a higher number of employees must pay a monthly or annual fee and might be entitled with a special website. This was the background framework that led to the arise of Dragões à boleia, a dedicated website (<https://dragoes.boleia.net/>), which intends to match a community of football fans from the club FC Porto and to the tailored platform created for the city of Guimarães (<https://guimaraes.boleia.net/>).

Structure of existing portals



Good practices elsewhere

The main competitor of Boleia.net in Portugal is the “**BlaBlaCar**” platform, which has worldwide operations. The representative of Boleia.net confirmed to monitor BlaBlaCar improvements to see how well Boleias.net is positioned against its main competitor. BlaBlaCar has more advanced features and, as a result of being a well-known company, it has a bit more users. The remaining concept is similar, which means that upon creating an account, members set up an online identity, and after leaving comments on their experiences with other members, develop a reputation.

Very recently, there has been a new player in the market, which is **Brisa**, the largest transport infrastructure company in Portugal. Realizing the potential of shared mobility, they previously met with Boleia.net to evaluate a partnership. However, they soon decided to build their own product, which was set up in a very similar way, with an individual area

separated from a corporate one and with no direct commission over the trips shared. The current number of users in Brisa is still very low, according to the number of people sharing rides online (which is seen as a proxy indicator). The only main difference noted relies in the advertisements, as the Brisa platform is ad-free.

Overall, all carpooling portals available in Portugal are growing in the number of registered users and number of trips shared, but this trend evolves at a slow pace. Boleia.net encompasses such trends even if it does not offer mobile applications as the other two main competitors do. This shortcoming appear to be not critical, because people can still access to the service through the web page.

When discussing good practices about carpooling, it is noteworthy to refer to **CHUMS** (<http://chums-carpooling.eu/>), which is an European project, co-funded by the Intelligent Energy Europe. Its purpose was to implement a combined package of measures to promote and support carpooling. CHUMS starts from the general understanding that carpooling requires numerous ways of engaging and winning the support of prospective users (in this case, employers) and that without such accompanying measures, carpooling schemes are unlikely to succeed.

Critical analysis on business potential

A study carried out by the International Transport Forum and published in 2016³ clearly points out the problem of excessive use of car, combined with low car occupancy. The study signposts, in particular, that if all the traffic volume produced in the city of Lisbon was diverged to a fleet of shared vehicles, it would require about 3% of the number of cars that currently circulate in that city⁴. This is a clear sign of the inefficiencies of single-occupancy car use, which creates congestion, other related problems, and shows that the future of mobility needs to be shared. Boleia.net fits here as a feasible contribution to mitigate these problems to some extent, by shifting demand towards more sustainable transport options.

Scaling up a platform such as Boleia to other contexts seems to be straightforward, should some preconditions be in place, especially the one that concerns the prevalent sharing culture of the population. **The cost structure of maintaining the Boleia.net web-portal seems to be low.** The main “technical” requirements lie in the contacts with the main employers and municipalities, which are hard to establish, as no clear enforcement is available in Portugal. Should this enforcement exist, it would smooth the deployment of the platform.

The contact person from Boleia.net recognized that **the service is growing. Yet, the pace is slow**, and this is a characteristic of the service itself, regardless of the effort employed. The problem is said to be lying in prevalent **national culture**, which is not open-minded towards sharing the vehicle with others. In France for example, shared mobility is at the forefront of urban mobility policies whereas in Portugal it is not. Boleia.net is not only a sound mobility tool for big cities. One could envisage implementing it in less densely populated regions. If applied to a local rural municipality like the ones mainly targeted in HiReach, one could envisage a portal with institutional advertising from the municipality, where the service is

³ <https://www.itf-oecd.org/sites/default/files/docs/shared-mobility-liveable-cities.pdf>

⁴ Although each car would be running almost ten times more kilometres than currently, total vehicle-kilometres would be 37% less even during peak hours.

being provided. Unlike the competition, namely BlaBlaCar, which keeps a commission of all the trips announced (normally around 10-12%), Boleia.net doesn't receive any earning from the users themselves. This is the main value proposition of the platform. This would therefore require a **strong political leverage** and the municipalities within the project catchment area should, as Guimarães did, take the lead and provide a free service to their citizens. But it is important to bear in mind that this is not sufficient to guarantee the success of the initiative. In fact, the legacy of the CHUMS project has shown that **it's fundamental to conceive a set of incentives to increase the attractiveness of the platform** and therefore actively promote more sustainable travel choices.


The potential of transferability is high, as the transference of the initial platform from Hungary to Portugal has shown. The success of BlaBlaCar, which is the most successful example of carpooling, is also a sign of how effective the service is, and of the business potential that exists and that can be further exploited, should adequate support from local entities be delivered.

Besides international transferability, **the platform is flexible enough to be customized to local needs and requirements**, where typically transportation networks are less dense and, as a consequence of this, transport options also scarce. It seems that there are **no technical impediments for deploying the platform in a new market segment**. The main requirements normally lie in the **institutional framework** that support the platform and balance the correct incentives. They also lie on the **local prevalent culture**, because the take-up of a carpooling platform requires a shared-culture, the willingness to adapt routines and some basic ICT skills, which can be a barrier among elderly citizens.

References

- dragoes.boleia.net
- guimaraes.boleia.net
- OECD (2016). "Shared Mobility. Innovation for Liveable Cities". International Transport Forum

2. Bummelbus

 Bummelbus	
Type of service	On-demand bus driven by unemployed
Country	Luxembourg
Address	20, route d'Ettelbruck, L- 9230 Diekirch (Lu)
Website	www.fpe.lu/services/bummelbus
Email	bummelbus@fpe.lu

Overview

Description of the service



Bummelbus (translated in English, it means "a bus which is strolling around") is a **combination of a social project and a mobility service offering door-to-door trips by means of on demand minibuses**, which currently run in the northern (rural) region of the country of Luxembourg.

This region is difficult to access without a car and it is underserved by public transport. Bummelbus is a door-to-door service, which picks their clients up, drives them to an address of their choice and takes them home again. It not only ensures the transport on demand for

general purposes but also enables demands for special events.

The service is available in 39 municipalities with around 80.0000 inhabitants and is a supplement to public and private transport. It has been put into service by the "**Forum pour l'emploi a.s.b.l**" with the objective to coach, support and occupy long-time unemployed people as drivers thus promoting the integration of jobseekers into the world of work.

Bummelbus is a way to move comfortably, safely and flexibly. The vehicles are operational from Monday to Friday (between 06:30 and 21:15) and on Saturday (between 6:30 and 17:15). The call center, which is responsible for the coordination of the reservations, is operational from Monday to Friday (in-between 8:00 and 18:00).

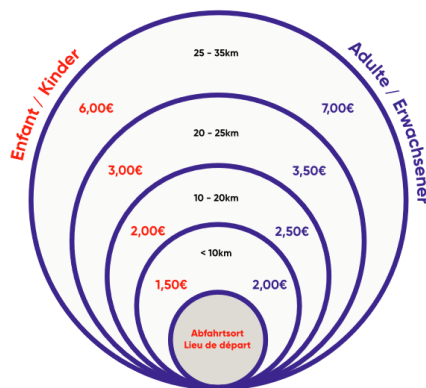
Usage of the service

Anyone who lives in the territory of the partner municipalities can take advantage of this service for short-distance journeys, especially within the municipality and neighbouring villages. Passengers are both adults who use it to go shopping, medical visits or everyday

activities (including commuting to work) and children who use the Bummelbus to go to their sports training or music school.

In 2017, **142.767 persons** used the Bummelbus. 55% out of them were children, 43% were adults, and 2% accompanied children. In comparison, in 2010, 101.350 persons used the service.

What facilitates the running of the service



People can rely on a flexible service, which brings them comfortably and safely from one place to another at a reasonable cost (less than 10 km for 2€, which is equal to the price of public transport) and in reasonable time. **Ticket fares are differentiated between adults and children and varies with the distance.**

The main driver is the **permanent funding by the state of Luxembourg**, which permits a stable system and supports its sustainable operation. The funding allows the project to increase, so that Bummelbus is constantly expanding its operational area.

Performance on transport poverty reduction

The Bummelbus reaches low accessibility social groups and areas. It is a complementary offer to public transport. If regular public transport is not accessible or available in rural areas, a service like Bummelbus seems to be a valid option. It supports elderly people, children or people who don't have car. It allows people to get to key services (e.g. supermarket, hospital, school, etc.) at reasonable cost, in reasonable time and with reasonable ease and safety conditions.

Resources used

The Bummelbus service was launched based on national funds provided by the Ministry of Labour, Employment and the Social and Solidarity Economy under the law of March 9th, 2009, which contributes to the **restoration of full employment**.

The funding rate is based on the number of employees in insertion, which is defined by the State. **It covers 70% of the operating costs**, which includes the salaries for the employees.

In 2017, the employees in insertion were 178 with **50% successful placements** after 11 months on average (the maximum duration of a contract is two years).

The service follows a non-profit approach and is not competing with commercial operators. In addition, private companies of the northern Luxembourg municipalities are sponsoring Bummelbus by **displaying advertising messages on the vehicles**.

There are currently 47 minibuses in service (VW Caddy, VW Crafter and Mercedes Sprinter).

Specific legislative, regulatory, and organizational environment

The "Forum pour l'emploi" is a non-profit organisation and the state of Luxembourg is the main funding source. **The funding rate is based on the number of employees**. The "Forum pour l'emploi" is also the operator of the service.

Good practices elsewhere



One good practice operated in some of the communes in Luxembourg, is the **Flexibus** or also called Rufbus ("Callbus"). These small buses are operated by a bus operator (Sales-Lents) and circulate within the corresponding commune.

Upon request, the bus picks the client up at his given place, takes the client to the address of his choice and again back home if the client requests it. Anyone wishing to move

spontaneously and flexibly on the territory of the municipality can take advantage of the Flexibus. For some communes, the service is for free, for other communes the clients must pay for each trip or can buy a monthly or annual subscription. So, the prices of a trip are varying between communes. The tickets can be purchased within the bus. However, there is a need to book a seat by calling the call centre (minimum 45 minutes before the chosen departure). It operates from Monday to Saturday.



Another good practice is the service of **Kussbus**, which was founded as a start-up by Utopian Future Technologies SA in 2017 and provides a (nearly) door-to-door passenger transport service in Luxembourg and the cross-border regions. Their main idea was to find a

way to make people more likely to travel by buses than their own cars. The bus shuttles have 19 seats, which get reserved from a smartphone app.

An algorithm aggregates requests from multiple users in the same direction and assigns them a common (virtual) stop near their home and workplace at the time the users have chosen. However, the common stop needs to be easily accessible on foot or by car and should always be near free car parks. The algorithm defines the virtual stops in a way that allows for minimal walking distance, while remaining as time-efficient as possible and picking up as many people from the same stop as possible. Kussbus is not a transport company but a technology company, that's why it takes care of the whole technology (app with algorithm) and customer relations.

The buses are provided and operated by the private bus company Emile Weber. Investors and the Ministry of Economics support Kussbus. It offers cross-border journeys between Habay (Belgium) and Kirchberg/Glacis (Luxembourg), Arlon (Belgium) and Kirchberg/Glacis, and from Thionville (France) to Kirchberg/Glacis. Luxembourg has a lot of cross-border commuters, which especially work in Luxembourg city.

Kussbus guarantees of having a seat and making a direct journey. The route is also defined according to the traffic on the roads. It adapts to the needs of the user and not the other way around. As Kussbus mentioned, it records around twenty daily users on average on this line. For one-way trip between Arlon and Kirchberg for example, the client must pay 5 euros. The clients pay by card. The movement of the shuttle, the client has reserved a place in, can be followed minute per minute. In addition, the reservation is flexible. If the client works a bit longer, he can use another one at another time at no extra cost. However, this is only the case if there is still a seat available. New routes are developed based on demands.

Critical analysis on business potential

If permanent funding by the state or other stakeholders is provided, the on-demand bus services can have a **big potential especially in rural regions** where public transport knows its limits. There is a growing demand, which pushed services to expand their offers to be able to cope with the demand. This, however, needs to be decided together with all the stakeholders. Potential new users of this service could be groups of people who are willing to reduce the usage of their car (e.g. save costs or reduce emissions, etc.). Permanent funding allows changes and innovative solutions.

The **potential of transferability is high**. Due to the success of Bummelbus in the northern region of the country, it could be implemented in the southern rural municipalities of Luxembourg. It shows especially that people who don't own a car or don't know how to drive are using this kind of transport service and rely on it. If other municipalities could profit of the same funding of the state, they could also implement a service like Bummelbus.

The operation of this kind of service could be facilitated using a smartphone app. However, this has some limits. The technology needs to be financed and IT specialists must be employed to take care of the functioning of the app. However, the biggest problem would be that especially elderly people are not that familiar with using a smartphone and some people don't own a smartphone.

In addition, it needs to be considered that although the services like Bummelbus are non-profit associations, they still need a sustainable budget.

References

- www.fpe.lu/services/bummelbus
- Forum pour l'emploi (2017). Rapport d'activité
- <https://www.interregurope.eu/policylearning/good-practices/item/128/bummelbus-dial-a-bus-service-occupying-long-time-unemployed-people/> Interreg Europe (2018). "Last Mile. Sustainable mobility for the last mile in tourism regions"
- <https://vakanz.sales-lentz.lu/service/flexibus-2/>
- <https://kussbus.lu/>

3. Bürgerbus Aichwald

	
Type of service	Community/Citizen bus
Country	Germany
Address	Weinstraße 7, 73773 Aichwald (DE)
Website	www.buergerbus-aichwald.de
Email	info@buergerbus-aichwald.de

Overview

Description of the service

The Citizen Bus in the rural area of Aichwald (7,500 inhabitants) in Baden-Württemberg, Germany is a **collective transport service operated with drivers being volunteering citizens**. The bus operates two times in the morning and in the afternoon and always drives to a neighbouring village and then returns to the city centre of Schanbach, one of the formerly independent municipalities together with Aichelberg and Aichschieß.



In general, the German Bürgerbus (Citizen Bus) is a comparatively simple **community transport scheme** existing since 1985. It has often been operated with the **support of public subsidies covering the purchasing of the usually up to 9 seats minibus and some operating costs like fuel and insurance**.

The service is operated in small cities and rural areas not served by regular bus stops with drivers being volunteering citizens. The timetable is set in such a way that all the lines can be operated by one single minibus. The service frequency is usually being aligned to the local demand and the available resources (buses and drivers).

In the Federal State of Baden-Württemberg, Germany (one of the HiReach case study regions), the Competence Centre for Innovation in Rural Public Transport counted altogether 30 active Citizen Bus services in 2017.

One of these Citizen Buses is the Bürgerbus Aichwald, which has been implemented in 2009 and is operating successfully since that time. The carrier is the BürgerBusverein Aichwald e.V., a registered association that has been founded to implement the Citizen Bus

Usage of the service

The service is operated 4 times per day (2 rides in the morning 2 rides in the afternoon). There are currently 35 bus stops. The bus service can be used by everyone. The standard tariff is 1€/ ride. Children of up to six years and mobility impaired people can use the service for free.

Currently, the bus has on average 17.8 passengers per day. The biggest passenger group (70%–80%) consists of elderly people.

What facilitates the running of the service

The citizen bus has four key factors for its success:

- **Non-profit, community-based approach,**
- **Reliability,**
- **The flexibility of the operational model,**
- **Active participation of local inhabitants.**

With regard to this example, it can be stated that Werner Kamm, chairman of the BürgerBusverein Aichwald e.V. (interviewed on 31/10/2018), functioned as the main promoter during the phases of conceptualization and realization. However, his promotional campaign would not have been successful without the active voluntary participation of the then co-founding association members. Financial drivers are **donations, sponsors, advertising partners and public funds.**

According to the chairman of the BürgerBusverein Aichwald e.V., the biggest barriers were: motivating the mayor/ municipality to support the idea; identifying and motivating other stakeholders to support the idea and overcoming the bureaucratic hurdles (permissions). Especially the last barrier required a lot of dedication and effort since it was at this time the first case where the licensing had been confronted with.

Performance on transport poverty reduction

The citizen bus is a complementary offer to public transport. It reduces mobility deficits of all inhabitants. The additional driving services specifically supports children, persons with mobility impairment, elderly people or people without an own car. The Bürgerbus Aichwald service transports on average 17.8 passengers/day, 70% to 80% of the passengers belong to the group of elderly and/or mobility reduced people.

Especially, for elderly people, the service allows them to stay mobile and independent, thus receiving many appreciations. Moreover, the citizen bus in Aichwald has a so-called “**Wave and ride**” **permissions allowing to pick up passengers between the stops.** This is a very important service for passengers with a walking impairment.

The positive impact can be summarized as follows:

- complementary offer to public transport or taxi;
- reduced dependence on cars;
- improved better accessibility to shops, doctors, authorities, schools, clubs;
- Improved connection to bus stops and train (feeder function);
- More mobility for the mobility impaired people.

Resources used

The approach has proven to be economically viable, but needs to be aligned to the local conditions.

The following resources are required to implement and operate the Bürgerbus: financial resources (sponsors, municipality, federal state); active promoters; support from the municipality and the transport operator; volunteers and demand for the service.

For a basic calculation, investment and running costs have to be differentiated.

Investment costs are related to the infrastructure for operating the vehicle and the vehicle itself: vehicle (usually with nine seats), including additional equipment for barrier-free access; additional bus stops (signs, poles, construction works); boxes for roadmaps and schedule; telephone for the vehicle; office equipment and reserve budget for vehicle procurement.

Running expenditures which have to be taken into account are: expenditure on the driver's license for passenger transport (if necessary); health checks for drivers (administrative fees and medical expenses); fuel costs; insurance; main inspection (TÜV); maintenance of the vehicle, telephone costs, office supplies and other operating costs (for coordination and public relations), advertising and marketing (website, print shop, timetables / information material, possibly advertisements).

However, there are **various sources that finance the required investments**, including the federal state of Baden-Württemberg (supports the vehicle procurement with up to 30.000€, drivers licenses for passenger transport, E-vehicles via various financial incentives), the municipality, the LEADER funds, foundations, and donors.

The average operating costs per year amount to 16,000€. Around 1,800€ are being covered by the fares (the BürgerBus Aichwald costs 1€/ trip, children, persons with walking impairment can use the bus for free), the rest is being compensated by around 80 sponsors.

The costs for organizing the running business of the registered association (infrastructure, meetings, financial/ other rewards for active members) amount to 2,600€/year. These costs are usually being covered by member fees, but the federal state supports the Citizen Bus initiatives with up to 1,500€/year.

Specific legislative, regulatory, and organizational environment

The Citizen Bus should be organized as a complementary offer to public transport not as a competitor. This means that once the idea has been raised and a clear demand has been identified, **the group of active citizens should develop their idea in close coordination with the public transport provider.**

Basically (according to the German law) two options are possible:

- the Citizen Bus as **an official Public Transport service**, allows the carrier to raise fares, but also requires fulfilling certain minimum standards;
- the Citizen Bus is operated in the so-called **License-free niche**. All drivers are volunteers, which reduces the total operating costs by up to 60% (no staff costs).

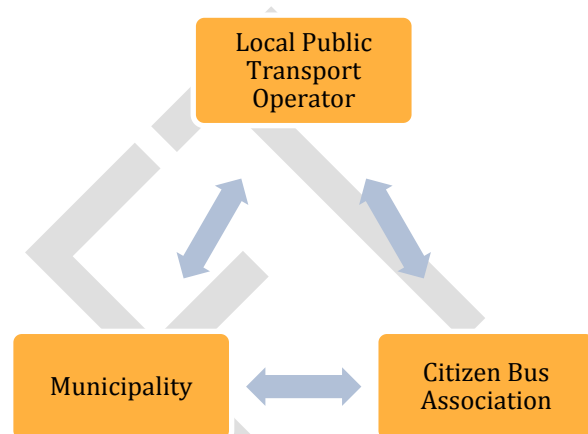
Both options have their advantages and disadvantages. The latter mentioned is the one with the lowest threshold in terms of realization but requires a lot of commitment.

In case that the Bürgerbus is being operated according to the law, first option, which regulates all aspects of passenger transportation (Personenbeförderungsgesetz), the carrier organization is allowed to raise fares. This makes it easier to keep the service alive and allows closer coordination with neighbouring or higher-level public transport services. In addition, certain minimum standards have to be met and the drivers need a permission for transporting passengers.

Organizational framework

The BürgerBus Aichwald follows this approach. Its organizational framework can be described as a triangle, consisting of the local transport operator, the municipality and the citizen bus association. **The local public transport operator is the concession holder and has to permit the operation of the citizen bus.**

The municipality is the formal carrier/operator of the citizen bus. The citizen bus association organizes and manages the operation. It has to be noted that this construction is not the case if the service is being operated in the "license-free niche".



Here, if no more than 8 passengers are being transported and if the transportation act does not have a commercial intention (as the main motive of the transportation act), drivers in Germany are not required to have a special permission for the passenger transport. Moreover, the service does not have to fulfil certain minimum standards, but **no official fares can be collected from the passengers.**

Good practices elsewhere

In the Netherlands, the concept of the citizen bus has been widely implemented under the name "**Buurtbus**". It is similar to the concept of the German Bürgerbus meaning that it is a complementary service to the public transport, which can be found in scarcely populated areas mostly. The Buurtbus is usually able to transport up to eight passengers and is being driven by volunteers and operated by a registered association "Vereniging". Buurtbus' website (www.buurtbus.net) tried to create a platform showing all available citizen buses in the Netherlands by province or city. On the side there are currently more than 200 initiatives listed.

On the other hand, in all parts of the UK, every day of the year, thousands of community transport staff and volunteers are helping people to stay independent. The **Community Transport Association (CTA)** is a national charity that represents and supports these organisations: thousands of charities, community groups, schools and other organisations, which all provide transport services that fulfil a social purpose and community benefit. Using everything from minibuses to mopeds, typical services including voluntary car schemes, community bus services, school transport, hospital transport, dial a ride, wheels to work and group hire services. Most are demand responsive, taking people from door to door, but a growing number are scheduled services along fixed routes where conventional bus services aren't available. The community buses are part of this scheme and have a similar

organizational pattern to the ones being operated in Germany and the Netherlands. First initiatives date back to the 1970s like the Cuckmere Community Bus which was established in 1976 in East Sussex with the aim of providing reliable and accessible transport to residents in the Cuckmere. Being an umbrella organization, the CTA is an advisor to all community transport initiatives and supports

Critical analysis on business potential

As previously described, the demographic change and the decline in population in rural areas of Germany make it more difficult to sustain the public transport service quality of the last decades. To a certain extent, community buses or citizen buses like the Bürgerbus in Aichwald are able to fill this gap.

The first initiatives in Germany date back to the 1980s, in the UK and the Netherlands first community buses have been implemented even before. This shows that - often with public subsidies and with the help of multiple sponsors - citizen buses can be successfully operated over decades. With regard to the growing demand, especially in **rural areas** of Germany and other European countries, there seems to be much potential (if the framework conditions are in place) for implementing similar services with same success.

The service stands and falls with a critical number of users and volunteers. The decisive criteria are: Is it possible to receive enough support (especially financial support) from the municipality and private sponsors? How many volunteers do I need to keep the service running?

The examples show that most of the services are open to each kind of user and show to offer reduced fares/free-rides for person with walking impairments and children. Nevertheless, **the service is being used predominantly by elderly people**. In the example of Aichwald, between 70% and 80% of the users belong to the latter mentioned group of people.

From the market segment perspective potential users can be recruited from the groups of people, who:

- Want to reduce their dependency on an own car,
- Save the costs for an own car,
- Cannot afford an own car,
- Are mobility-reduced and need a driving service,
- Have no driver's license.

Supporting stakeholders can be recruited from the side of the municipality, local companies and charity organizations.

Generally, the service of the Citizen Bus **can be implemented everywhere**, where enough persons and the framework conditions are available to organize/refinance the resulting costs. However, as the examples from Germany, the Netherlands and the UK illustrate, it is **always necessary to have a person on board (promoter)**, who actively pushes the whole undertaking forward. The examples from Germany and the Netherlands do also show that **specific legal and regulatory conditions or indirect subsidies by reduced taxes can be the decisive adjustment screws** that decide whether the business model is in the end

implementable and successful. Therefore, it is necessary to carefully check existing framework conditions and to adjust the business model accordingly.

The developed **guideline for the Citizen Buses** foresees five main aspects which need to be considered/settled before the service is being implemented. These are: carrier organization; legal form and approval; coordination with the formal public transport operator(s); funding; voluntary engagement and good public relations.

References

- www.buergerbus-bw.de/info/englisch/
- www.buergerbus-aichwald.de/?menuid=1&getlang=de
- www.buergerbus-bw.de/fileadmin/nvbw/user_upload/Broschuere_Buergerbus_2017-WEB.pdf
- www.buurtbus.net
- www.cuckmerebuses.org.uk

4. Buurtkar

	
Type of service	Mobile shop and social service
Country	Belgium
Address	Lindestraat 138, 2880 Bornem (BE)
Website	www.buurtkar.be
Email	N/A

Overview

Description of the service

The 'Buurtkar' ('neighbourhood cart') in Bornem, a municipality of 20.000 inhabitants in the province of Antwerp, serves the following main objectives:

- it is a **mobile shop** where people can buy fresh produce and other goods;
- it is a **social service centre** on wheels that people can turn to with all kinds of questions about health, welfare, municipal services, etc.
- it offers **employment opportunities** for vulnerable groups;
- it is a **meeting place** that stimulates social contact among local residents;
- it **allows elderly people to live at home** and remain self-reliant for a long time.



Mainly elderly people and less mobile citizens use this services, but in essence the Buurtkar is there for every inhabitant of Bornem.

The Buurtkar drives through all the **rural boroughs** of Bornem. Some **neighbourhoods in the centre** are served as well.

The Buurtkar was introduced in 2016, considering that elderly people want to live at home and be self-reliant for as long as possible, but that has become problematic

especially in rural areas because basic services (e.g. a local grocer) are disappearing.

The Buurtkar was launched by the municipality of Bornem's social department, together with Ecoso (then WRAK), a non-profit organisation promoting social employment. The cooperation with Ecoso ended in December 2016 and also, the old Buurtkar vehicle broke down so a new one had to be bought. As the evaluation was positive, it was decided to continue.

Since the beginning, the functioning of the Buurtkar has changed a lot. Several additional projects have been linked to the Buurtkar's basic services, e.g. every fortnight, there is a **meal service in each neighbourhood which is a big success**.

Usage of the service

The Buurtkar mobile shop and service centre runs along **fixed routes** through Bornem. **Every weekday between 9:00 and 16:00-17:00**, it serves a different neighbourhood. The **routes were mapped out** based on figures of where most elderly/less mobile people live. People can **hang a sign** in front of their window if they want the Buurtkar to stop at their house. There are also some fixed stops at central locations in each district.

People buy (fresh) food or other goods at the Buurtkar. The **driver also brings groceries inside or helps with small tasks in the house** (e.g. moving a carpet, changing a clock, etc.).

For the municipality of Bornem, the Buurtkar is an important communication channel to inform people about activities, new services, etc. The communication works both ways: if people have a problem or a question, they can address the Buurtkar driver who will advise and, if necessary, redirect them.

For people who are socially isolated, a simple weekly chat with the driver or a neighbour already makes a big difference. If regular customers are not there, they are checked upon to make sure they are okay.

On average, the Buurtkar has **45 to 50 clients per day**. In total, around **400 inhabitants of Bornem use its services**.

What facilitates the running of the service

The social aspect is very important. The **Buurtkar drivers are very motivated**; they know all the clients personally. The evaluation has shown that the following elements work really well:

- help with informative questions and referrals;
- deliver groceries inside or shop for neighbours;
- opportunity to meet each other and have a chat;
- signal problems (e.g. when a regular customer doesn't show up).

Another strong point of the Buurtkar concept is the **cooperation with local producers and traders** (who are encouraged to consider the Buurtkar not as competition, but as an opportunity to reach out to more customers) to offer high quality, fresh, healthy and local products, e.g. rice pudding, honey, fresh soup, etc. Special attention is paid to seasonal products (e.g. strawberries, asparagus); some products are produced by social enterprises (e.g. jam or soup made by Pegode vzw, an organisation for people with a disability).

Starting from the Buurtkar, **spin-off projects** were (and more will be) launched, that strengthen even more the social tissue in the local communities. For example, every two weeks, joint meals are organised, to bring people together. This works really well. The Buurtkar informs about such activities and allows people to register for them.

Before the launch of the Buurtkar, a local grocer drove around Bornem. When he stopped, no one was found to take over his business and the municipality was able to buy the vehicle. Thus, the investment cost to try out the Buurtkar concept could be kept low.

Subsidies helped to finance the investments in the start-up phase. The municipality was also assisted by the 'social innovation factory' – a networking organisation that promotes, guides and supports socially innovative concepts.

Communication and promotion of any new project is important and requires a lot of effort. Special attention was paid to personal, oral communication towards vulnerable groups.

There was a quite long preparation time because the Buurtkar was a new initiative; **there were no concrete examples to follow or to learn from**, and partners had to be found. The municipality had no experience in shop keeping (e.g. inventory management, food safety, purchasing policy, etc.) and there was no budget to hire someone specifically for this task.

Currently, people are still a bit reluctant to discuss personal issues (e.g. health issues, care questions) because of privacy reasons (they are mostly not alone with the driver) so this aspect requires some more thought.

Some local businesses, even though they were involved in the project from the beginning and were given the opportunity to participate, were sceptic, because they considered the Buurtkar as competition. To avoid this as much as possible, the **Buurtkar's routes take into account the weekly closing days of local shops** and don't pass there directly.

The old Buurtkar required a D drivers' license and there were a lot of mechanical problems. These issues were solved when **a new, tailor-made, smaller car was bought to replace it**.

Employment of vulnerable groups was from the beginning the main objective of the project. This came with some challenges, because some people that had been unemployed for a long time did not have the right attitude at first, arrived late, didn't show up etc.

Performance on transport poverty reduction

After the start-up phase, a survey was conducted among Buurtkar users. The results were very positive and therefore it was decided to continue with the project. In more detail, practically all respondents stated that the Buurtkar indeed has an impact on their ability to live independently at home (97%) and also allows for more contact with neighbours (48%) and increased access to healthy food (77%). 35% of the survey respondents indicated that they can't go to the shop because of mobility problems. The Buurtkar allows them to do their own shopping and choose what they want (42%).

Since 2017, in each local community of Bornem, every two weeks, joint meals are organised and the initiative is a big success. Before, it was organised in the city centre only, with a van that would pick up people from the surrounding areas, but this was not popular: people prefer to have a meal together with their neighbours instead of with people they don't know. Perhaps they also found it too much hassle to get on and off the bus.

It is evident that the Buurtkar, and the activities organised around it, **take away much of the need to travel**. For the remaining mobility needs, there are some options as well: there are services for people with reduced mobility and recently, the 'Bornem bus' was introduced to connect all the boroughs with each other and with the centre. The Buurtkar informs people about these options so in this sense also reduces transport poverty.

Resources used

Especially in the startup phase, investments had to be made: purchase of a suitable vehicle, furnishing of a warehouse (and cooling room), digital systems (LCD screen, laptop, cash

register system, etc.) The total investment cost for the Buurtkar amounted to about 100.000€ (10.000€ per year). And of course, staff is needed for supervision and support.

In Bornem, the project was initially subsidized by the province of Antwerp (the regional government). Additional funding came from a Dutch fund (Anton Jurgensfonds, around 10.000€). As mentioned before, the municipality was able to test the concept with a second-hand (cheaper) vehicle before deciding to purchase a new, more expensive, one.

Exploitation costs amount to +/- 20.000€ per year, and include as main categories:

- vehicle costs: insurance, fuel, taxes, maintenance;
- ATM machine (people can also use it to withdraw cash);
- warehouse costs: rent, insurance, electricity/gas, internet/telephone.

In addition, of course, there is the cost for purchasing goods that are offered for sale.

On average, the Buurtkar has 45 customers per day and 225 per week, who spend around 13€ on average. The total turnover is +/- 135.000€ per year. The Buurtkar itself, as a shop, is self-financing and even yields a yearly profit of +/- 20.000€. This means that the profit from the sale of products covers the operating costs (including depreciation costs) and personnel costs in the context of social employment (excluding overhead and other personnel cost).

With regard to personnel involved, the Buurtkar currently employs three part-time drivers and a part-time employee for logistic tasks (in total 2 full-time employees). **Personnel costs in the context of social employment are to a large extent covered by subsidies** from the regional government (Flanders). The social service department of the municipality of Bornem provides the other personnel. This is not considered as an extra cost because it is the social service's core business. In fact, compared to investing in additional infrastructure and extra staff for local service centres, the Buurtkar allows for a more efficient and effective deployment of personnel, operating resources and investments.

Specific legislative, regulatory, and organizational environment

In Flanders, the policy framework provides a lot of financial and other **support for social entrepreneurship** that allows job creation for people who have difficulties to (re)access the labour market (cf. <https://www.socialeconomie.be/regelgeving>). In practice, this means that for the Buurtkar, part of the employment cost is subsidized by the regional government.

The Buurtkar project had to take into account **VAT and food safety regulations** (see below).

The service was launched by the municipality of Bornem's social department, together with Ecoso (then WRAC), a non-profit organisation promoting social employment. At the beginning, it was subsidized by the province of Antwerp. For the sale of goods, the municipality has looked for **cooperation with local SMEs**. Agreements were also made with Colruyt (a big supermarket chain).

After the pilot phase, the collaboration with Ecoso ended and the municipality's 'business department' ('Autonoom Gemeentebedrijf') took over the 'economic activities' (sale of goods), as the social service department is exempt from VAT administration.

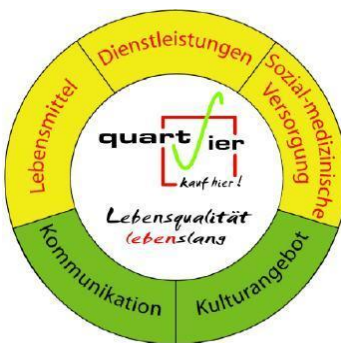
The municipality's business department follows up all the financial transactions related to the 'economic activities' (including the purchase and depreciation of the vehicle). The municipality also provides a storage room (with cold room for fresh products). The social department finances the personnel.

A **steering committee** with several partners (representing the municipality, local traders, the regional government and users of the Buurtkar) is responsible for making strategic choices, monitoring of the results, giving feedback and introducing new ideas.

Good practices elsewhere

DORV stands for 'Dienstleistung und Ortsnahe Rundum Versorgung' and is based on five pillars: food (with focus on fresh, local products), services (e.g. banking, post, insurance), socio-medical care, communication and socio-cultural activities. The DORV concept is similar to the Buurtkar initiative in that it also bundles a number of (both commercial and social) services in one place, in order to counter the problem of shops and services disappearing from local communities – which allows (again, similarly to the Buurtkar) people to keep living in their own home and remain self-reliant for as long as possible ('Lebensqualität lebenslang': life quality, for one's entire life). Also, as with the Buurtkar, the social aspect is very important.

It all started in the rural village of Barmen (Germany) 15 years ago. 5-6 years ago, the concept was transferred to the (peri-)urban context as well, where it is called QuartVier. By now, there are already 40 DORV centres in Germany and +/- 10 in Austria.



The most important activity in each DORV centre is selling food. This is also what brings in the revenue and helps to cover the cost of providing the other services (cf. five pillars).

In the beginning, it was difficult to convince people (including possible investors) that the idea of combining such very diverse services could work, but by now it is a proven concept.

One of the main sources of funding is crowdfunding by the locals. In Barmen, for example, 100.000€ was raised to set up the first DORV. In some cases, but by no means always, the

municipality or regional government also donates some money. The main costs involved are related to finding a building to use (buy, or lease) and furnishing the shop (cash register, cooling counters, etc.). Each DORV is a GmbH (Ltd. company) with paid staff (the number of staff depends, of course, on the size of the DORV centre).

DORV reduces transport poverty as it brings a number of basic services closer to people. The DORV centre can be reached on foot, by bike or even by walker. Especially for elderly people, people with reduced mobility and/or people who have no access to a car, it is important to have such services nearby. But also young families are an important customer group – which is why in some DORVs, in order to cater to their needs, biological foods are added to the product range.

The DORV centre in Barmen has an electric minibus (donated by a charity) to transport goods but also people. It is used, among other things, to collect people from more remote areas and bring them to the DORV centre so that they can enjoy a coffee there, participate in an activity, have a meal, etc. For further travel, people can arrange to carpool, through the assistance of the DORV staff that acts as an intermediary. In the future, it is foreseen to introduce car-sharing systems coordinated by DORV as well, i.e. cars that are not used (or, in the case of Düren, a cargo bike) can be booked by DORV clients when they need them.

One of the main success factors is, first of all, citizens' engagement. The initiative must come from the bottom up. Citizens not only co-create but also co-finance their DORV centre (as

shareholders, cooperative members, etc.). This is important not only to finance the start-up, but also to create a sense of ownership and ensure that local inhabitants will effectively do (some of) their shopping in the DORV centre.

Another strong point (similar to the Buurtkar approach) is the focus on local and regional products. Ultimately, it is the bundling of many and diverse services into one place (which implies also the cooperation between many and diverse actors) which makes the DORV concept not only attractive but also economically viable. Main stakeholders, apart from the inhabitants, are local producers of food (e.g. baker, farmer), local governments, banks, etc. Evidently, DORV centres need to comply with the rules and regulations on food safety, shop opening hours, etc. Especially the rules on food hygiene are very strict, which is a potential barrier.

The DORV concept could be transferred to other regions and countries as well, even though the framework conditions and people's expectations may be different. Initial contacts have already been made in Belgium, France and the Netherlands. The first step is always a feasibility study, based on set criteria such as population numbers and density, accessibility, engagement of local citizens and stakeholders, etc. When the results of this first step are positive, the next step is to find an enthusiastic group of local pioneers who set out to map the locals' main needs and expectations by means of a large-scale survey. The last step is actual implementation, which includes finding partners, location, staff etc.

Other initiatives, similar to DORV, exist as well, without actually carrying the DORV label.



In Belgium, the '**village hub**' in **Beveren-aan-den-Ijzer** is a place where inhabitants can meet and find services that had disappeared from the rural village. It is a platform for many new initiatives and is run by people with intellectual disabilities. The aim is to facilitate mobility, to create a short chain between producer and consumer and to set up concrete services such as the collection of parcels. Interestingly, the 'village hub' concept in Beveren explicitly includes the pillar 'mobility' (image: Westhoekoverleg).

Critical analysis on business potential

Mainly elderly people and people with reduced mobility benefit from the Buurtkar services. At the beginning, the Buurtkar stayed open longer hours (from 5:00 to 17:00) to allow also other citizens (who work during the day) to shop there and ask questions, e.g. to renew an ID card or similar. The intention was to provide everyone in the neighbourhood with such services, not only the elderly. However, this didn't work. **People who are still mobile didn't come.**

The Buurtkar could be a solution for other municipalities as well to **tackle the problem of local shops and services that are disappearing**. However, the idea cannot simply be copied from one municipality to another. The local context must be taken into account. Many other Flemish municipalities were very interested, but without a market car to start with, there is no way to try it out at a reasonable cost. Also, the size of the municipalities plays a role. In Bornem, the Buurtkar drives to a different area each day, and this fits. Sint-Amands, a neighbouring small municipality, also asked to use the Buurtkar but the schedule was already full, so this was not possible. In the province of Flemish Brabant, a number of smaller municipalities will join forces and also start a Buurtkar initiative together.

The Buurtkar is a success formula but **transfer to other municipalities requires a tailored approach based on the local context.**

First, it is important to get to know the local needs. Also, a good business plan is needed.

In Bornem, it was the municipality who introduced the idea. In other cases, perhaps other stakeholders (social entrepreneurs?) could take the initiative. This depends on how social services are organised in different countries.

The Buurtkar (name and concept) is a registered trademark. It is quite unique in that it combines social and commercial aspects into one service. The concept may be copied if the municipality of Bornem gives permission to do so.

References

- www.buurtkar.be
- www.dorv.de
- www.quartvier.de
- www.regionalbewegung.de
- www.duurzame-mobiliteit.be/goede-praktijk-dorpspunt-beveren

5. Dörpsmobil

	
Type of service	Community car
Country	Germany
Address	Hauptstr. 106, 25899 Klixbüll (DE)
Website	www.doerps-mobil.de
Email	info@doerps-mobil.de

Overview

Description of the service

The Dörpsmobil, is based on **an e-car sharing approach and an associated rental car service**. It has been initiated by Werner Schweizer, mayor of the Schleswig-Holstein town of Klixbüll, who has implemented a village car together with engaged citizens organized in a registered association. Since 2016, the electric car is operated under the name "Dörpsmobil" (German word for village mobile).



All members of the association are allowed to rent the car. This is being organized with the help of an **online calendar** or an **active member adding the booking requests that arrive via telephone**.

The e-car has been leased by the association. The running costs are being compensated by the **members' fees** and the payments for the car use. In addition, it is possible to **request a ride by one of the voluntarily registered drivers**.

With the offer, a real environmentally friendly alternative to the own vehicle and a meaningful supplementary element in the rural mobility system could be created.

In Schleswig-Holstein, the Dörpsmobil itself has found many follower-municipalities which have implemented a comparable system. This transfer process was actively promoted by the Akademie für Ländliche Räume e.V. (with support of the Ministry of the Interior, Rural areas and integration Schleswig-Holstein) that developed an **implementation guideline** together with the Nexus Institute Berlin.

Usage of the service

The service is being used by all members of the founding carrier organization (registered association). These are inhabitants of Klixbüll and employees of local companies and the municipality as well. The user has to **book his/her time slot via an entry in a simple online calendar**. It is also possible to **book via telephone**, then the dispatcher adds the booking request in the calendar. The **keys can**

be picked up in the municipal building and must be delivered there upon return or can be placed into the post box.

The members are using the car to drive to the next village (buying groceries, visiting friends, visiting the doctor, work trips by municipal representatives). The driving service brings persons to school, or the next public transport stop (bus station). Thus, the service is being used by people who do not want to / are not able to finance an own (e-)car, have no driving license or are mobility impaired.

What facilitates the running of the service

The three key factors of success are:

- **non-profit, community-based approach;**
- **the flexibility of the operational model;**
- **active participation of local inhabitants, support of the municipality.**

The Mayor functioned as the main driver during the phases of conceptualization and realization. However, he would not have been successful without the active voluntary participation of the then co-founding **association members (being the formal operator of the e-car)**, who actually comprise the later users of the village car. Additional drivers were also the financial support for the implementation of the **charging infrastructure** which has been realized with funds from the EU-program LEADER and the cost-free rooms and infrastructure for the association that are being provided by the municipality.

The biggest challenge is to motivate a critical amount of people to organize and use the service. Experiences in other municipalities also show that it is important to receive support from the side of the municipality as active stakeholder but also as a user of the service guaranteeing a certain basic use.

Performance on transport poverty reduction

The solution can be seen as complementary offer to public transport and partially formalized mobility services such as the citizens buses.

It reduces mobility deficits of all inhabitants. The additional driving services specifically supports children and elderly people or people without an own car.

The positive impact can be summarized as follows:

- **complementary offer for public transport or taxi;**
- **reduced dependence on the car;**
- **improved accessibility to shops, doctors, authorities, schools, clubs;**
- **improved connection to bus stops and train (feeder function);**
- **more transport solutions for the mobility-impaired people.**

Resources used

The approach has proven to be economically viable but needs to be aligned to the local conditions. It is a counter (non-profit) approach to business approaches of commercial operators which are usually not offering car-sharing services in rural areas due to too small profit margins.

An exemplary calculation for the Dörpsmobil that includes all cost and revenue positions can be seen below:

Cost indication (example calculation)

COSTS		REVENUES	
Leasing (car and battery)	3,408€/y	Member fees (e.g. 20 members à 5€/m)	1,200€/y
Insurance	500€/y	Renting fees (e.g. 1.040 h/y [20h/w] à 3,50€/h)	3,640€/y
Electricity	750€/y		
Software and other single investments	60€		
Total	4,718€/y	Total	4,480€

As the table shows, the e-car (as the largest cost position) has been leased by the registered community car association. The critical number of members in this example is 20. However, tariff and member fees delimitation offer a certain flexibility. Nevertheless, the economic viability depends on the actual use. In the case of the Dörpsmobil, the municipality is an active member of the association and guarantees for a certain amount of use.

In summary, it can be stated that **with 20 active members and a weekly use of 20 hours (if cost positions are not larger) the approach is economically viable.**

For the individual user, the renting fee is 3.50€/h. The costs are reduced with the number of people using the car at the same time.

Specific legislative, regulatory, and organizational environment

The main differentiating criterion to realize a village car is the carrier of the service. Basically, it is possible that a company, the municipality or - as in the example of the Dörpsmobil - a registered association, acts as the main carrier/operator of the system/ service.

In Germany, the option to implement the village car via a registered association has three important advantages:

- a registered association is required to work for the greater good. As a result, the association organizing the service is - from the legal point of view - not being treated as a commercially operating business entity (less or no taxes);
- all regulations that transport service providers need to consider do not apply for the Dörpsmobil;
- voluntary drivers do not need a license for passenger transport.

In order to implement the service, active people have to find a registered association or to create a sub-branch of an already existing one.

The association is then **leasing the e-car and is the formal operator** of it, which means that the association is liable for all legal issues (accidents, open bills etc.). As a result, the association needs to organize the insurance.

All members of the association with a valid driver's license are able to rent the car. The resulting costs are being compensated by the member fees and the agreed tariff. This tariff should be understood as a cost compensation and is actually the differentiating criteria to

a commercial operator, where the tariff includes the costs of the actual use, the maintenance costs and a small profit margin.

Within the association, all tasks that are directly or indirectly related to the service are carried out by the different members.

These are: organising the **booking system** (via a complex online system, a simple online calendar and a telephone service or a paper book); organising **handing over or return of the car or the keys to the car** (personally, post box or in a safe storage); **managing the monetary transactions** (treasurer); organising the **maintenance of the vehicle** and monitoring the **vehicle charging**; organising the **meetings of the association**, leading and representing the association (per election).

This shows that the implementation of such a Dörpsmobil offers a lot of space for manoeuvre, but also requires a lot of decisions.

Good practices elsewhere



The **Buurauto** in the Netherlands can be understood as the commercially driven variant of the Dörpsmobil. Moreover, the service requires a critical number of users and therefore very often can be found in urban

agglomerations.

Potential users can register themselves via the online platform and choose between different tariffs. If a critical number of users in a certain neighbourhood has been reached, Buurauto deploys an e-car within the neighbourhood. The registered users can then book the Buurauto via an App or Online and receive the key electronically on their smartphone.

The business model could be implemented because the government of the Netherlands reduced the taxes for e-cars to push the growth of the electrical car fleet. This made it possible for private entrepreneurs to implement business models such as the one of the Buurauto.



Since February 2010, **Talybont Energy** (Wales) has sponsored a community car share project. For the first 2.5 years, the scheme had two cars – a 100% electric Mega City car called 'Bluebell' and a Skoda Octavia which runs exclusively on recycled vegetable oil. In 2012, the 'Bluebell' has been replaced by an electric Renault Maxi Crew Kangoo Van for the scheme which can be configured as a van or as a 5-seater car (with side windows). The van is being charged using the solar generated electricity at Henderson

hall. The car share scheme currently has 12-member households who book the vehicles online and collect them from the community hall where they are parked. There is a log book in each car and users are invoiced for usage once a month. The scheme includes a bunded tank where the biodiesel (manufactured from recycled vegetable oil) is kept.

Critical analysis on business potential

As described in the first chapters, rural areas are not very attractive for commercially operating car-sharing providers. For this reason, most of the services can be found in urban agglomerations.

Nevertheless, the examples show that car-sharing together with a driving service is an option to reduce car-dependency for those not being able to, or not wanting to buy/ lease an own car. Moreover, the driving service in the case study allows also mobility-reduced and elderly persons to be mobile again and to be less dependent on others.

The service stands and falls with a critical number of users. The decisive criterion is: **How many users and actual use are necessary to compensate the costs?**

In case of the commercially driven options it is better to talk about expenses since for these options the operating costs plus an additional profit must be generated.

Potential user groups can come from the group of people, who:

- want to reduce their dependency on an own car,
- want to save the costs for an own car,
- cannot afford an own car,
- are mobility-reduced and need a driving service,
- have no driver's license.

In case of an electric car the potential motives can be extended by the one that seeks to reduce the negative environmental impact (less direct and indirect emissions).

Generally, the service of the village car can be implemented everywhere, where enough persons are available to refinance the resulting costs.

However, as the examples from Germany, the Netherlands and Wales illustrate, **it is always necessary to have a person on board**, who actively pushes the whole undertaking forward.

The examples from Germany and the Netherlands do also show that **specific legal and regulatory conditions or indirect subsidies by reduced taxes can be the decisive parameters** that decide whether the business model is implementable and successful in the end. Therefore, it is necessary to carefully check existing framework conditions and to adjust the business model accordingly.

The developed guideline for the Dörpsmobil foresees four main steps to implement the village car:

- assessment of demand;
- selecting the operational model (and also the main approach: community-based, commercial);
- delineation of the framework conditions (stakeholder analysis, getting supporters on board [companies, municipality, electricity providers], financial analysis);
- implementation planning (implementation of the operational model chosen [e.g. founding an association, vehicle procurement, booking and accounting system, selection of the site where the vehicle is parked, charging infrastructure, checking additional funding possibilities, legal framework, insurance).

Reference

- Döge N. et al. , Hegel (2018): Das Dörpsmobil – Ein Modell fürs E-Carsharing im ländlichen Raum!. (S.41-43). In: Vereinigung für Stadt-, Regional- und Landesplanung (SRL) e.V. [Hrsg.]: PLANERIN. Mitgliederfachzeitschrift für Stadt-, Regional- und Landesplanung. Berlin
- www.klixbuell.de/politik/person/34414/werner-schweizer.html
- www.doerpsmobil-sh.de
- www.buurauto.nl
- <https://talybontenergy.co.uk/eco-car-share-project-2/eco-car-share-project/>
- www.klixbuell.de/seite/277432/die-d%C3%B6rpsmobile.html

DRAFT

6. Fairfahrt

 Fairfahrt	
Type of service	Ridesharing platform
Country	Germany
Address	Vogelsbergstr. 11, 36329 Romrod (DE)
Website	www.fairfahrt.de
Email	info@fairfahrt.de

Overview

Description of the service



Fairfahrt (fair-ride in German) is a **ridesharing platform** organized in and around the city of Romrod, which lies in the rural area of Hessen, Germany. The central idea is that car drivers, on their way to a specific place in Romrod or nearby, can pick-up persons at **one of the five stations** and offer them a free ride in their own car.

Participating users have to register themselves and receive an **ID card** allowing them to add a riding request at one of the five stations. The main station is inside a supermarket, the other four are in other districts of the administrative area of Romrod.

The drivers, who only need to download the developed App (and do not necessarily need to register themselves), either **receive a push-notification or are being informed by a green lamp** above one of the stations that a ride-request has been entered to the system.



This functions via the chip that every registered person receives. The chip has to be put in front of the stations and the destination of the ride has to be entered.

Cars passing by can pick up the persons waiting next to the stations. The system also allows registered drivers to add future trips to a driving schedule which allows potential users to better plan their future trips.

The idea for the platform has been developed in January 2016 and was launched in April, 2017. The realization was only possible because of strong support of the Mayor Birgit Richtberg and other sponsors. Currently the service is running in a comparatively small scale (test bed) and is being further improved.

Usage of the service

Currently the service is being further improved and has around **10 users/month**. No specific analyses regarding user-groups and their characteristics have been performed so far. At the moment, the developers are working on its further development.

What facilitates the running of the service

The service could only be realized with the **strong commitment of the founders** that also developed and installed the technical equipment related to the service.

The city Mayor supported the project right from the beginning and helped to bring the county as another formal supporting entity on board. Moreover, she supported the fundraising to cover the investment costs

The largest challenges can be seen in the development of the technical infrastructure. Another challenge that occurred was to dispel the fears regarding a newly emerging **competition on the side of the public transport operator**.

Performance on transport poverty reduction

The solution has the potential to reduce mobility deficits of different groups of inhabitants, but the main intention behind the invention was to create a service that brings the people in the region closer together.

Although no concrete evaluation activities have been carried out so far, imaginable positive impacts can be summarized as follows:

- complementary offer for public transport or taxi;
- reduced dependence on the car;
- improved mobility for the mobility impaired people and older people as well as refugees.

Resources used

Active persons constructing and installing the stations as well as setting-up the services' infrastructure (homepage, App, chips, registration), funds for **construction material**, low amount of money and time to keep the service running (**costs for the telephony** are the only running costs/month), **support from the municipality**, and **sponsors** constitutes the resources used to implement and maintain the service.

Specific legislative, regulatory, and organizational environment

There is only one legislative/ regulatory issue that has to be settled in advance. This encompasses the **formal allowance of the municipality to install the ride-request boxes in public space**.

Good practices elsewhere

A similar practice is the **Roshni Rides**, launched as a transportation network that works like a ride-sharing shuttle service for refugee families outside of Karachi, Pakistan. They used rickshaws to take passengers on pre-set routes to important destinations like hospitals, schools and markets. Now Roshni Rides is an end-to-end enterprise transportation solution especially for women in Pakistan. Its carpooling service takes travellers to major points of



Roshni Rides

interest such as schools, hospitals and marketplaces like Uber and Lyft. The focus of Roshni Rides is to improve the mobility of female commuters.

Target users can subscribe themselves via the online platform and their female staff is matched to nearby riders and optimized routes.

The Roshni Rides could be executed because they deliver an affordable and reliable public transportation infrastructure in Orangi Town, Pakistan, by providing rickshaws and an electronic payment system, similar to modern transit systems across the world. Along with a way to get from place-to-place, Roshni Rides provides access to transportation for millions of refugees allowing them to reach their working places securely work hence helping them to rebuilding their lives in their new destination.

Critical analysis on business potential

The demographic change and the decline in population in rural areas of Germany make it more difficult to sustain the public transport service quality of the last decades.

This requires alternatives during time frames or regions where no legal public transport is being operated or for inhabitants not capable of driving or wanting to purchase an own car.

The case study shows that the services is principally open to each kind of user. However, **according to the founders, elderly people are most probably the biggest group of interest**, although the main idea of the service is to bring all people in the region closer to each other.

For security reasons, users should moreover be older than 12 years of age and drivers have to register twice (picking up and dropping off), when offering children a ride. Generally, potential users can be recruited from the groups of people, who:

- want to reduce their dependency on an own car;
- save the costs for an own car;
- cannot afford an own car;
- are mobility impaired and need a driving service;
- have no driver's license.

Generally, the service of Fairfahrt can be implemented everywhere. However, as the examples from Germany illustrate, **it is always necessary to have a coordinator on board**, who actively pushes the whole undertaking forward. In the case study, the city Mayor took over this role and supported the founder in collecting money to refinance the investment costs.

The example from Germany also shows that once the service has been implemented **the necessary effort and the required funds to keep the service working are comparatively low**.

So far, the Fairfahrt founders developed the technical infrastructure on their own, that's why the information on how to construct and install the stations and the related online services has to be obtained from their side in case of an implementation elsewhere.

Until the service can be implemented, five different steps have to be fulfilled:

- development of a general concept;
- recruitment of supporters and promoters (fund raising);

- development of technical infrastructure (stations, App, homepage);
- deployment/ implementation of technical infrastructure;
- public relations, advertising the offer.

References

- <https://www.fairfahrt.de/>
- <http://www.roshnirides.com/>

DRAFT

7. Fietsmeesters

	
Type of service	Cycling training programme
Country	Netherlands
Address	Herculesplein 209, 3584 AA Utrecht (NL)
Website	www.defietsmeesters.nl
Email	N/A

Overview

Description of the service

De Fietsmeesters is **a training and coaching initiative in the province and city of Utrecht**. Its goal is to achieve safer cycling and consists of three main activities:

- **cycling workshops at schools (combination of theoretical lessons and practical exercises);**
- **practical cycling lessons on how to cycle;**
- **cycling education and guidance on how to teach and learn.**

In all neighbourhoods of the city of Utrecht twice a year a cycle-training course is planned. The **trainers are two to three volunteers** that have followed a specific training. The **participants use a bicycle provided by the Fietsmeesters**. The target vulnerable groups are **children of school age and ethnic minorities, especially women** with a non-western background but lessons are open to everyone. Lessons are provided in the city of Utrecht. Starting from the last quarter of 2018, lessons are also organised in the region of Utrecht, with a focus on cities.

The initiative was launched in 2015 when the grand-depart of the Tour de France was held in the city of Utrecht. To enlighten this big event, a series of initiatives have been proposed. One of these initiatives was to get more people cycling (and let people move more). The focus lied on migrants and ethnic minorities at neighbourhood level. In total, **14 neighbourhood cycling teams were established**.

Usage of the service

Since 2015, the Fietsmeesters initiative is carried out by the neighbourhood cycling teams in **12 locations** in the city of Utrecht, twice a year at each location.

A total of 24 courses are organised every year with about 10 participants per training session, which results in 240 people trained each year. The participants learn to ride a bicycle and receive a coaching support during 10 weeks. To encourage the use of the bicycle in daily

life, the Fietsmeesters provide bicycles for the participants with a big discount. About 100 to 120 of the participants bought a bike during or after the course.

In total, between 700 and 800 people took part at the initiative in the years 2016, 2017 and 2018.

What facilitates the running of the service

The start of the Tour de France in 2015 was a very good kick start for the project. A lot of attention was drawn to cycling and cycling events. The initiative got good media coverage, which boosted the campaign.

The city of Utrecht pays special attention to neighbourhoods. The Fietsmeesters fits into the local neighbourhood strategies. This allows to approach the potential participants and to focus on specific groups. These groups are already known by the local neighbourhood services, which allows the Fietsmeesters to easily engage them. The main idea of the overall neighbourhood strategy is that public participation is the driving force behind healthy and vibrant neighbourhoods.

Another key driver of the success of the Fietsmeesters is a strong network of volunteers. The teachers within the project are volunteers. The success is thus depending on enough volunteers, who are provided by a good city network. At the moment, being involved in the initiative is very popular amongst the volunteers.

An issue at the start of the initiative was that the **female participants only wanted to be trained by female teachers**. This was not foreseen. To facilitate this, the group of teachers was composed of at least one man and one woman. During the course, the sensitivity of getting trained by a man was gone. Nevertheless, the training teams remain in general mixed.

Performance on transport poverty reduction

The initiative particularly addresses immigrated women (with a non-western background) learn to ride and to use the bicycle in daily life. About 800 women have participated over the last three years in the training.

Resources used

The initiative is supported by the city of Utrecht, both by the city administration and the politicians. The alderman for mobility supports the initiative. The initiative is 100% sponsored by the city. The budget is allocated by the department of Mobility.

At Fietsmeesters, a project leader is spending 8 to 16 hours a week on the project. Next to the project leader, a communication advisor is working 8 to 12 hours a week on the initiative.

The total budget is 71.000€ a year. However, it is not part of the basic funding of the municipality yet.

Specific legislative, regulatory, and organizational environment

There is no specific legislation in place for the Fietsmeesters initiative. It is a volunteer initiative. It only has to respect the normal regulation for the provision of trainings with trainers.

Each volunteer needs to hand over a certificate of conduct in which the Dutch state declares that the applicant did not commit any criminal offences that are relevant to the performance of his or her duties. The obligation of handing over this certificate was in the

beginning an extra barrier for some volunteers. The Fietsmeesters has a corporate liability insurance in case of (small) accidents with the bikes during the training.

Good practices elsewhere

There are other good practices in the Netherlands and other cycle prone countries such as Belgium and Denmark. Worth mentioning is the **Leuven Fietsschool (cycle school)**. It is an initiative of the City of Leuven (Diversity and equal opportunities) and Mobiel 21. They cooperate with local partners such as KU Leuven, CBE Open School, Velo and the Police and get support of sponsors.

The Fietsschool Leuven teaches adults how to ride bicycles. The bicycle school offers 4 courses of 16 lessons each year. This intensive daytime cycling course mainly reaches lower educated people, people in training, unemployed people, mothers with young children, and newcomers.

Critical analysis on business potential

There is a market potential in the Netherlands, due to the fact that there are many women with a migrant background that actually do not know how to cycle. This keeps them back from correctly integrating in the Dutch cycle friendly society. Other initiatives in the Netherlands are also mainly driven by volunteers (e.g. experienced cycle trainers) and municipal subsidies and/or sponsorships to get the trainings started. Some regulations (e.g. the declaration of good behaviour, insurances, etc.) have to be respected to set up the necessary protection for the vulnerable groups to participate. The integration with existing neighbourhood social services is preferable to actually approach and engage the cycle students.

Transferability would be specifically possible in other cycle friendly countries. The services are already existing in Belgium and Denmark. In other countries, where already some cycle culture exists, it might be a way to provide a mean for emancipation, reinforcement of self-esteem, as well as a measure to promote healthy life styles.

As it is shown in the Belgium good practices, the Fietsschool case can be easily replicated to other vulnerable user groups, specifically unemployed people that do not know how to cycle. There are also courses for elderly people. It is worth mentioning the **“Right for wind in your hair”** initiative of the cycling without age network. It helps elderly people to get regularly out of the house, through the organisation of short and longer cycling trips with passenger transport bikes (i.e. rickshaws). This allows social inclusion, a healthier lifestyle and offers a good time to elderly people.

References

www.defietsmeesters.nl

www.cyclingwithoutage.ie

www.gastvrijegemeente.be/inhoud/fietsschool-leuven

8. FlexTrafik in Denmark

	
Type of service	Demand-responsive transport scheme
Country	Denmark
Address	Thought 7, 3rd floor, 9000 Aalborg (DK)
Website	www.flexdanmark.dk
Email	info@flexdanmark.dk

Overview

Description of the service

FlexTrafik is the name given to all demand-responsive transport services in Denmark, particularly those addressed to citizens who cannot use or have no access to traditional public transport. Flextrafik indicates publicly contracted passenger transport services organized according to citizens' needs and not to a fixed route or timetable.

A first coordinated FlexTrafik system was established in 1997 and is still an integral part of the public transport provision organized by the five Danish public transport organizations (PTOs) Nordjyllands Trafikselskab, Midttrafik, Sydtrafik, FynBus, and Movia, who act as mobility advisors and operators for the local authorities in the respective geographical area. The core element of the service is represented by FlexDanmark, a nation-wide ICT infrastructure and competence centre which support FlexTrafik operations, processes and services.

The basic idea of the **Danish "Flex concept"** is to optimize each individual trip, in the best possible way, based on all available resources (vehicles), needs and (in)convenience of the individual customer. The flexible services are defined by special norms and operated in substitution of traditional scheduled bus lines using taxis, car-hire with driver, minibuses or DRT buses. They can either be "open" and accessed by anyone or "closed" and restricted to certain users only after prior approval from their municipality or region.



The main services, here presented according to the offer of the PTO Movia, include: open flexible collective public transport (**FlexTur**), transport of citizens to and from hospitals (**FlexHospital**), to and from doctors (**FlexMedical**), transport of people with disabilities (**FlexHandicap**), transport of children to and from school (**FlexSchool**) and transport of elderly

people to and from activities/day-care centres (**FlexActivity**).

FlexTur is a flexible alternative to ordinary public transport and offers a transport service from address to address without a fixed roadmap and it can be used any day from 6:00 to 23:00. It is operated by vans and taxis, but differs from a classic taxi service since customers often travel with others and generally the trip is not direct between the requested origin and destination. FlexTur rates are based on the travel distance and prices increase if traveling between different municipalities. Price per km ranges between 0.5€ and 1.9€.

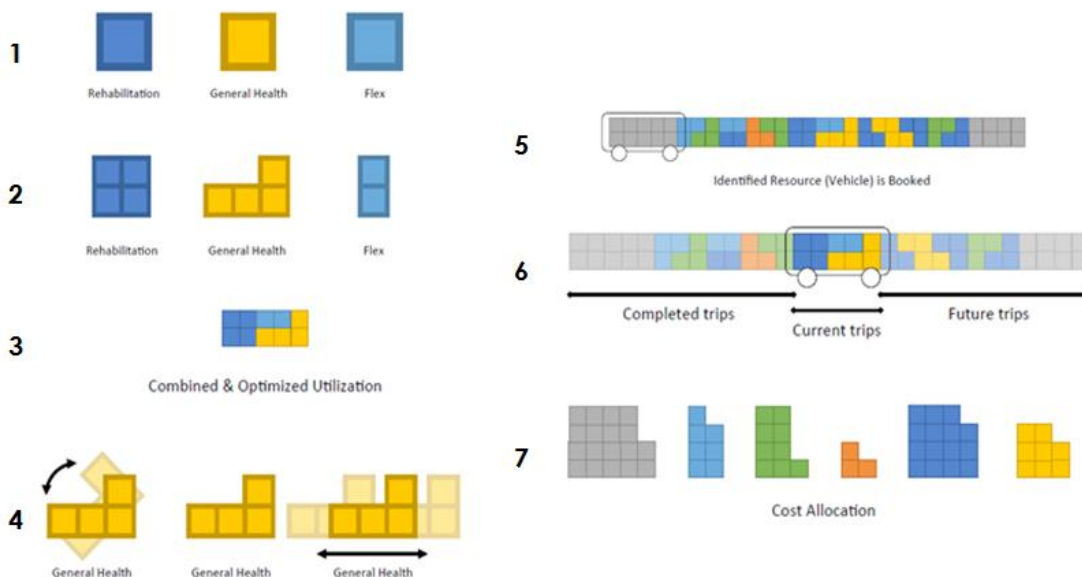
While FlexTur can be used by everyone, **FlexHandicap** is specifically addressed to persons with physical disabilities. FlexHandicap includes driving for leisure activities, family visits, shopping, cultural events, etc. and can be used every day of the week, 24 hours a day. Similarly to FlexTur, FlexHandicap combines travellers together. The travel rate is 0.54€/km with a starting fee of 4.7€ per trip.

FlexActivity is a service designed for elderly people who need to be driven to day centres, rehabilitation, or health centres. Contrarily to FlexTur and FlexHandicap, FlexActivity operates on fixed routes and fixed times, when citizens enrolled in the program (managed by municipalities) are driven together in the same car or van.

FlexHospital is specifically designed for those who must go to hospitals for examinations or recurrent treatments and cannot use regular public transport. Again, the trip is shared with other customers and the return from the hospital is directly managed by the clinic. Similarly, **FlexMedical** provides a service for those who are going to a doctor, specialist, or rehabilitation.

Finally, **FlexSchool** is a service for children with special needs (e.g. people with reduced mobility and children living in remote/rural areas). It operates on regular routes and at fixed times when multiple students, subscribed by their municipality or school, drive together in the same vehicle.

The Flex concept in seven steps



When a user calls to book a trip, the FlexDanmark software and call centre first checks if the user is entitled to subsidized transport. It then notes the starting address of the trip, its destination and the time when the person wishes to leave or to arrive.

The **software's key feature** is the search for the vehicle that will make the generalized cost of the trip lowest depending on the scheduling algorithm. It can be a contracted vehicle available that is not yet in service and located at its base, or a vehicle already allocated that will be diverted to take additional travellers. The system also takes into account the cost (remuneration for the provider) of the empty return to base, when it might be reassigned to a new journey if it is the best placed. The different parameters such as time of booking, pickup window or potential detour, allow the software to optimize, within certain limits, the routing of the vehicle and increase its occupancy rate.

When the passenger boards, its identification allows the software to spread the running cost of the vehicle between all the passengers on board and/or to charge the various agencies that fund the mobility of these travellers.

In order to make sure to get the lowest prices for the execution of the trip, **a complex and tailored tendering system was designed**. This opened competition to all transport operators in the market, including the smallest, such as individual taxi drivers. This bidding system distinguishes two types of contracts: "day" or "occasional". The first one, generally used for special vehicles or more or less regular circuits, includes operators that provide FlexTrafik with a fixed number of vehicle for a given period of time. The second one, which generally consists of taxis, includes operators that make a certain number of vehicles available to FlexDanmark at certain times of the day. For both types of contracts, transport operators bid a price per minute.

Usage of the service

In 2017, FlexDanmark handled more than 6 million of FlexTrafik trips. They moved more than 250.000 passengers using more than 5.000 vehicles and 750 passenger transport operators.

As said above, the **principal users of the service** are either any person who needs a flexible and tailored alternative to the use of regular public transport (open service) or specific categories of people who, for various reason, require the use of FlexTrafik (closed service). These categories include elderly, children, persons with disabilities and persons requiring medical care.

In terms of percentage of usage of FlexTrafik, the open DRT service accounted for 20% of total trips, pre-approved closed DRT (e.g. FlexActivity, FlexSchool) accounted for 50% of total trips, and special needs closed DRT (e.g. FlexHandicap, FlexMedical) accounted for 30% of total trips.

What facilitates the running of the service

The key feature of FlexTrafik lies in its **technology platform that enables to dynamically assemble the supply of demand-responsive transport services from a large pool of different providers**. The sophisticated planning and scheduling software is designed to produce a service that minimizes the cost of service delivery by selecting the lowest cost-qualified and available operators as it generates vehicle tours, while also maximizing service productivity and maintaining an appropriate level of service to the customers being transported. The vehicle selection is intimately linked to the tendering system, which was designed to make sure to get the lowest prices by opening competition to all the transport operators on the market, including the smallest.

Also, the specificity of the FlexDanmark system over all the other DRT management softwares lies in its own way of selecting the vehicle that will perform the transportation and in the way it spreads the cost of this transport between different payers.

Another factor of success has been the ability to **coordinate as much as possible the various subsidized transport services** to increase the volume of travel to be treated. As a consequence, this increased the likelihood that several passengers could share the same vehicle boost the vehicle occupancy rate. Larger volumes to be treated can also bind the various trips optimally and reduce the dead mileage between the different assignments. In this sense, the possibility of mixing transport from different authorities and putting in the same vehicle persons from different programs represented a key factor in optimization.

In order to maintain high standards of quality in the provision of the service, a sample of travellers is regularly surveyed to assess their trip of the day before on a scale of satisfaction with different aspects of service such as timeliness, quality of care, comfort, etc. The transport authority uses these evaluations to apply any sanctions to operators who do not deliver satisfactory service. They are also used during the renewal of tenders.

Beside the factors of success, the implementation of FlexDanmark had to face with **different challenges** regarding various sphere:

- **Technical challenges:** computing limitations of assignment software. Designing the optimal vehicle assignment and route selection to minimize the total time cost of the system is a task that today computers are barely capable to carry on in real-time. However, progress is being made on computer processing speed and algorithm's improvement.
- **Economic challenges:** the procurement process for both the platform and the transport operators.
- **Institutional challenges:** showing the importance of getting the various agencies dealing with transport at different jurisdiction levels and coordinating to ensure coherence in policies, economies of scale and fair distribution of costs and revenues.

Performance on transport poverty reduction

DRT services are highly relevant in solving both current and future mobility issues. This is true not only considering the mobility of people with special needs, but also considering the help they can have improving rural connectivity or healing congestion issues.

In this sense, FlexTrafik helps reducing transport poverty for two main reasons. The first one is that the service has a toolbox capable of developing the public transport service in rural and sparsely populated areas and it proved to work well in places where access to public transport is very limited or non-existent. The second one is that the principal customers for which the service was designed represent the categories of people for which mobility generally represents a challenge (elderly people, children, persons with disabilities or illness, etc.).

Resources used

Flextrafik's resources consist in all the means necessary to support, operate and develop flexible passenger transport services throughout the whole Danish country. The principal element is constituted by the FlexDanmark software whose core responsibilities are to acquire, maintain and develop the IT systems in support of FlexTrafik operations. The

software licences and upgrade cost approximately 1.8€ million per year. There are around 110 employees working for FlexDanmark.

In 2017, roughly 6 million of FlexTrafik trips were completed at a combined pay-out of about 150€ million. This results in approximately 22€ per trip on average considering all the different services (including the very expensive special-needs services).

The vehicles used for the running of FlexTrafik are based on six different categories (depending on the number of seats, wheelchair accessibility, and presence of additional elements on-board) and have separate requirements as defined in the procurement material. Other quality requirements align with the Danish Taxi regulation. Each transport providers must have equipment that allows them to communicate using the SUTI communication protocol in order to receive instructions from the FlexDanmark's system. As of 2017, there are approximately 5.000 vehicles and 773 carriers providing FlexTrafik services.

Specific legislative, regulatory, and organizational environment

In Denmark, the mobility authority and responsibilities are held by the local municipalities and regions. However, a law allows for the transfer of responsibilities to the public transit organizations (PTOs). This structure enables cross-border collaboration and coordination of mobility. In this context, FlexTrafik services represent one group of services the PTOs deploys when advising local authorities regarding mobility offers and efforts. The PTOs manage the FlexTrafik services in accordance and collaboration with the participating authorities. Some of the flexible services are required by law, while others exist to supplement the traditional public transport services.

FlexTrafik was born in an environment where high importance is given to transport services for people with special needs. The result is that citizens who are not able to transport themselves have a right to a number of public transport services, in connection with the use of public health, rehabilitation services, schools, and leisure schemes. These obligations, that are almost 100% tax-funded, are placed with the Danish municipalities and regions who may use the public transport organizations to take care of the transport through local tendering (i.e. FlexTrafik). This means that the public sector is the central supplier of transport services to citizens with special needs.

In this sense, the specific role of FlexDanmark is to coordinate all the public flexible transport services with the purpose of having one shared DRT IT system supporting online numerous authorities and operators.

Good practices elsewhere

There are a few examples of FlexTrafik-like organizations, seen in **Norway, Sweden, Belgium and Finland**. These are all countries with a comparable public transport organization structure to the one in Denmark. That said, technology platform of the sophistication of the FlexDanmark system have not yet appeared in other markets, but they are likely to do so in the near future.

Currently a handful of DRT services are using their technology systems to involve multiple service providers in the delivery of transport services. For example, in **Orange County, California**, the scheduling system used for the transit agency's DRT service for the disabled is able to determine that the most appropriate service provider for some trips would be a local taxi company. In such cases, it will then transmit the pick-up and drop-off data for the

trip directly to the taxi company's dispatch system where it is then sent forward to the mobile device of the taxi driver.

Critical analysis on business potential

FlexTrafik fundamentally improved DRT service organization. The purpose of such a service controlled by the FlexDanmark platform is to assemble and optimize the DRT supply from multiple diverse providers, where the service being delivered could be general public flexible services, including traditional DRT, eligibility-restricted DRT services and coordination systems involving multiple organizations who supply and/or engage the transport service on behalf of their clients/patients/etc. In this sense, FlexTrafik represents a service that is already inclusive of all the market segments of the Danish flexible transport sector.

However, there are several potential improvements related to the service and to its possible expansions in the market. A first one regards the possibility to handle first mile/last mile connections to regional transport services. Such solution would potentially generate significantly higher levels of service productivity. Another technology opportunity consists in developing a platform appropriate for private market DRT services, particularly those in metropolitan areas in emerging market countries.

As said above, FlexDanmark's success was possible thanks to the favourable and integrated regulatory and organizational environment at all levels (national, regional and county/municipal level) in Denmark and more in general Scandinavia. For this reason, replicating elsewhere the same model might not be as seamless.

That said, should the service be replicated elsewhere, it is necessary that jurisdiction and agencies are able to agree to pool their needs and create a single authority or organization in charge of making calls for tender, selecting the carriers, ensuring the logistic system, paying the carriers, and charging the different agencies of the consortium the transportation costs of the people to whom they must ensure mobility. In order to do that, it would also be necessary to work closely with all the stakeholders, take time to involve experts from many levels and areas, and to manage expectations (such as service level, time to succeed) with citizens.

In order to efficiently deploy the service in new market segments, a necessary upgrade would involve the utilization of software systems that dynamically configure the service. The most advanced concept would include increased computational speed (in a cloud computing environment) and new types of scheduling approaches and optimization algorithms to implement "demand adaptive services", which include both fixed and flexible (demand-driven) pick-up and drop-off points. In theory, such a service can be re-configured dynamically in real-time to provide the optimum mix of level of service to users and service productivity.

In addition, it would be necessary to improve the efficiency in the provisions of flexible transport. These include for example a more stringent assessment practice of the legislation in order to better understand the citizens and potential markets having a real need of transport that need to be provided with DRT services.

References

- www.flexdanmark.dk
- www.moviatrafik.dk/flexkunde
- Darbera R. (2017). "Travel-chains. Mode choice for the taxi of the future." International Road Union (IRU).

DRAFT

9. GoOpti

	
Type of service	Shared airport transfers (ride-hailing service)
Country	Slovenia (born), Italy, Croatia, Austria, Serbia, Hungary, Germany
Address	Vilharjeva cesta 21, 1000 Ljubljana (SI)
Website	www.goopti.com
Email	N/A

Overview

Description of the service



GoOpti represents a **European transportation platform that provides shared and private airport transfers at affordable prices** and connects passengers traveling from smaller towns to both large and small airports.

The service allows travellers to map out a route, book and pay for a trip through a website or a mobile app.

By now, GoOpti operates in several European countries and is one of the fastest growing dynamic shuttle platforms in Europe.

GoOpti area of operations



GoOpti was experimentally launched in the summer of 2011 by three Slovenian entrepreneurs. The main goal was to offer a low-cost shuttle service taking passengers to and from nearby airports. This idea came from the market demand, as they noticed that the development of many low-cost airlines made air transport cheaper for many travellers.

GoOpti utilizes **a platform providing web and mobile app in which dynamic pricing and pooling, risk management, routing and payment transactions are incorporated.** The platform allows, on one hand, passengers to get an affordable, convenient, and direct transfer at the desired time from home to the airport, and, on the other, shuttle companies to get pricing, marketing and sales know-how, route planning, customer and driver support. The online booking system recognizes demand and optimizes the occupancy of vehicles in order to achieve the lowest possible price for the passengers and the highest yield for the carrier.

GoOpti's business model is based on the **franchising scheme**. It has (currently) contractual agreements with 21 franchisees in three countries (Slovenia, Italy, Croatia), who execute transport and may have subcontracting transport companies that can execute transfers on their behalf. This is particularly advisable for franchisees who either don't own many vehicles in their fleet or operate on the busiest routes. Partnership with other transport companies ensures reliability of transfers especially in high season. Generally, GoOpti franchisee is a company operating in tourism or transport business who wants a steady and profitable business. On the other hand, it has been committed to follow GoOpti standards and make GoOpti business successful.

In order to book a transfer, a passenger must enter a pick-up and drop-off location, the number of travellers and their departure/arrival time limits. Based on the data entered, GoOpti system offers three different transfer types with respect to the passenger privacy wishes, budget and time flexibility.

The **shared transfer**, which is the cheapest solution, groups together passengers with similar travel time limits in the same vehicle on one of the GoOpti's regular routes. The desired departure time and the transfer price are chosen at the booking. The price is fixed and lower in case of early booking, if more people book together, or if a pre-defined GoOpti location for pick-up and drop-off is chosen (i.e. not door-to-airport). The exact departure time is fixed one day before the transfer.

The **private transfer** is a completely private ride operated on the GoOpti network of routes and represents the best solutions for businesses and individuals who wish to enjoy a private transfer at a reasonable price. The departure or arrival time is set by the customer at the booking and the price is instantly confirmed. The customized transfer is a solution for passengers with specific requirements (e.g. pick-up or drop-off locations out from the regular routes or group transfer by bus) that has to be quoted separately and requested via a dedicated form.

The passenger must select a transfer type, baggage and extra (insurance against any delay on the road or of the airline) and pay by a credit card at the last step of the booking process. Instantly after the booking, a booking confirmation is sent to the passenger's email address, and the transfer is 100% guaranteed. The GoOpti website can be accessed on a computer, a mobile phone, a smartphone, a tablet and on other portable devices with a web browser. It is available in eight languages and allows payment in seven different currencies.

Usage of the service

GoOpti began its operations in 2011 when it started with two vans, three routes and three persons employed. As of October 2018, the service has done 145.000 transfers carrying more than 1,3 million passengers. The current fleet is constituted of more than 800 shuttles that serve 55 cities and 42 airports in 7 different countries.

The usage of the service aims at solving the problem of connecting smaller towns with nearby airports and at providing an interurban transport solution for residents of such towns, where, due to poor organization and lack of demand, there is no regular public transport and consequently not enough profit for the transport provider. GoOpti's targeted customers generally live in cities with a population between 100.000 and 800.000 inhabitants.

What facilitates the running of the service

GoOpti's key aspects that ensured its success are flexibility, affordability and reliability of the service. The backbone of the successful model is represented by the IT platform with all its features, including the smart revenue management pricing based on self-learning probability models, which allow to execute the transportation in a profitable way also on less frequently travelled routes, **at a lower cost than the cost of public transport, but with the same comfort and flexibility of a personal car.**

In addition, GoOpti offers **multiple advantages for both passengers and carriers.** On one hand, passengers get a reliable door-to-door transfer from home to the airport with an adapted departure time based on their needs and low prices that are fixed at the time of purchase. On the other hand, carriers get an opportunity to launch new routes that have not been profitable before. In addition, they can increase the occupancy of the vehicle fleet and profit on existing routes. Also, they become part of an international network of sales.

Finally, carriers' requirements to join the service are not extremely restrictive (qualified drivers must have a valid road passenger transport license, a vehicle in good conditions and not older than 2 years, and successfully completed a training course on GoOpti standards), thus allowing many independent operators to join and enlarge GoOpti's fleet. In addition, the service mainly utilizes mini vans which imply less requisites for the drivers/operators. In fact, stricter regulations and more specific driving licenses would be required in case of utilization of buses or larger vehicles of more than 9 seats.

Performance on transport poverty reduction

The principal help that GoOpti offers in reducing transport poverty consists in providing a transport service in areas where public transport connections lack. This includes smaller and semi-rural towns where, due to poor organization or lack of demand, there is no regular public transport and consequently people struggle to reach nearby airports or even neighbouring towns.

Compared to other competitors, GoOpti is very flexible regarding its routes and offers customized transfer even to/from rural areas or very small towns.

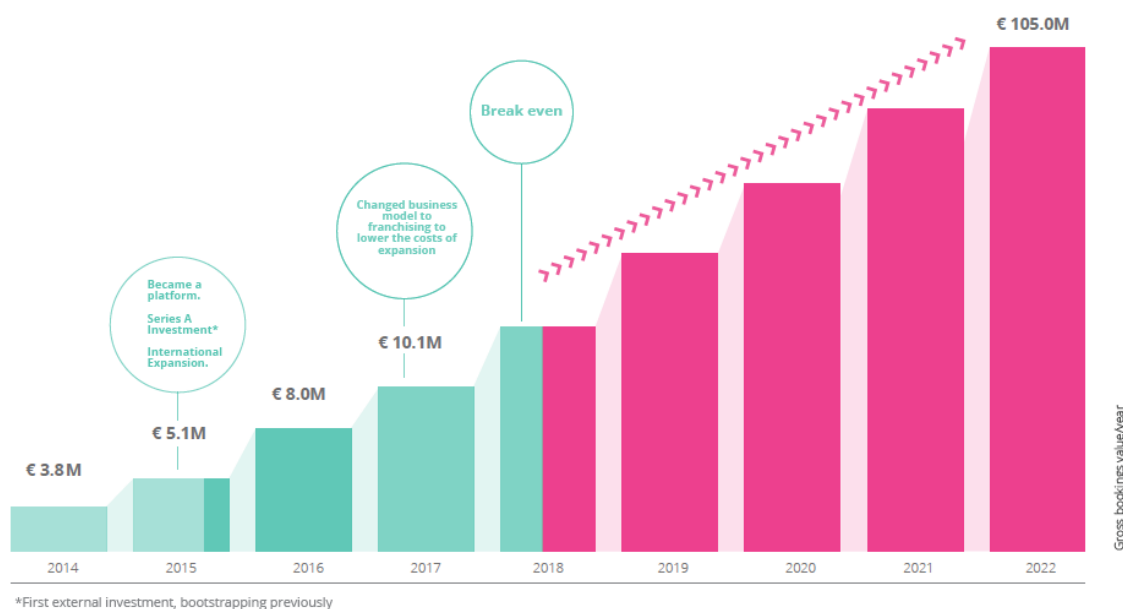
Resources used

GoOpti accounts for more than 40 team members.

The **franchise model** is constituted of three main elements.

- The key element is the principal **online booking portal** and represents a comprehensive operations and sales platform, based on a low-cost mode, probability calculus, statistics of past inquiries and bookings, the flexibility window and an innovative passenger-combining system. The platform is constantly improved and new technologies are continuously monitored in order to fight competition.
- The **vehicle fleet**, owned and maintained by the franchisee, which consists of more than 800 shuttles. Each shuttle has to be equipped with GPS, travel order, driver employment contract and license, Bluetooth, and GoOpti logo and business cards.
- The **local marketing, promotion and sales**, which is also done by the franchisee. Specifically, each franchisee is obliged to perform offline marketing (distribution of flyers and brochures, print publications, billboards, radio advertising), online marketing, public relations, partnerships, and branding.

GoOpti's gross bookings value/year



Specific legislative, regulatory, and organizational environment

The legislative, regulatory, and organizational environment is different in each country where GoOpti operates, and this may cause additional legal costs, development costs and slows down the penetration. There are also limitations of the number of licenses per city which obstruct the growth and make the execution more expensive. In addition, pooling and occasional transport is not clearly regulated in EU, which causes confusion and misconduct.

Good practices elsewhere

GoOpti is a pretty unique system and differs from most of the shuttle service offering home-airport connections. The most similar service can be considered **SuperShuttle** (<https://www.supershuttle.com/>), an American shared transportation service which provides cost-effective airport shuttle transfers from users' home, office or hotel.

However, there are two main features that differentiate GoOpti from SuperShuttle. The first one is that GoOpti adopted the concept of **yield management**, a variable pricing strategy widely adopted by low-cost airlines. Based on the prediction of how many people will travel on a certain day and on a certain route, prices get fixed. In fact, users generally book the airport shuttle together with flight tickets, a few weeks before the trip, and in that case they can get really low prices for the shuttle ride.

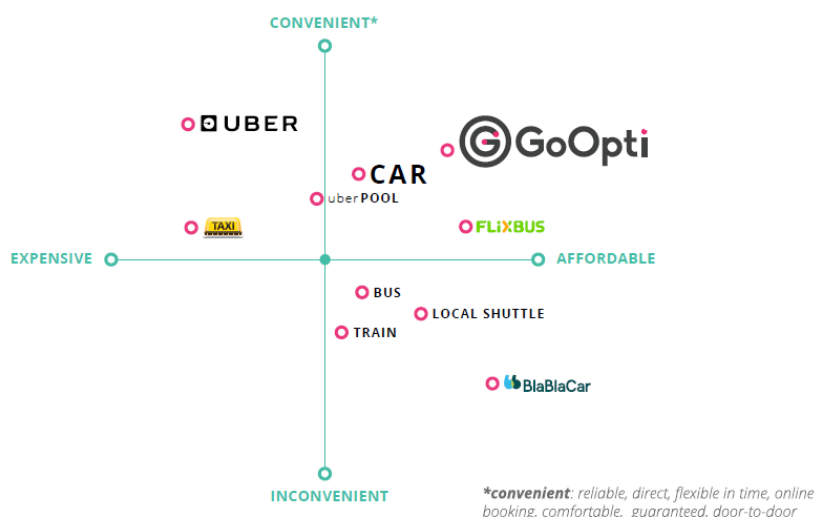
The other main difference between the services is the **flexibility window** that has been introduced by GoOpti: on longer distances, people can be quite flexible and when getting to the airport they can choose to arrive some time earlier and benefit of a better deal for the transfer.

Critical analysis on business potential

GoOpti is a platform that provides affordable and professional transfers from home to nearby airports. Travellers who need these connections are money and time savvy. These customers might find GoOpti preferable over the personal car, public transport, shuttle services, carpooling or taxi for multiple reasons.

In this sense, GoOpti offers the same comfort as private cars, but allows for a more affordable, independent, greener, and hassle-free ride. In comparison to buses, GoOpti is more comfortable and reliable, simpler and safer. There are also various low-costs of shuttle services, but these mostly connect large airports and cities with a regular line operating in short intervals. GoOpti is more flexible regarding its routes and offers transfers to custom locations, while other competitors only operate on standard routes.

GoOpti's competitors



Some potentialities for the future are related to improvements in the technical platform in order to allow to book shorter travels less time in advance. The ultimate goal for GoOpti would be competing with Uber within cities by offering cheap shared rides in real time.

Also, emerging technologies such as artificial intelligence, e-vehicles, and autonomous driving should always be taken into account in order to adopt cutting-edge solutions and fight the competition.

In addition, GoOpti should consider replicating its service to sparsely populated/low-demand areas, providing transport connection between alpine/rural and urban areas, thus offering on-demand transfers to unprivileged groups such as elderly, persons with disabilities. However, this would require local authorities to support the pilot activities and platform upgrades.

Considering potential new markets, GoOpti's research found that there are about 400 cities of the "right size" in Europe with poor connections with the nearby airports and even with the neighbouring cities. This is also a consequence of the fact that in the past decade, many low-cost airlines have established their hubs in places that are transport-wise not very well-connected. In particular, the most promises for a service expansion are in Eastern Europe, where larger issues with public transportation exist, but also in Western European countries the scheme could be easily transferred.

In the short term, GoOpti is planning to expand its operations and open new routes over two areas, where already an established presence exists: Southern Italy and along the Adriatic region. In the longer term (3-5 years), the expansion plan foresees a city-by-city approach of growth to new regions in Western and Northern Europe.

The GoOpti model could be replicated in many other places of the world and guarantee reliable door-to-door transport services, available at low prices and also on routes where, due to low demand, the existing public or private transportation companies cannot provide scheduled transportation services. The key element to take into account is that GoOpti is capable of bringing profitable business to transportation companies where competitors fail to do so due to low demand.

In order to bring the service into a new market it is fundamental to make a thorough market analysis for the potential routes in order to see if there is enough demand (critical mass of potential passengers) and supply (transport companies with enough resources/vans/drivers in the fleet).

In addition, in order to expand the service to more deprived areas or to provide a customized service for unprivileged groups (and in general for transport-poor people), it is fundamental a commitment from local authorities in order to support the pilot activities and platform upgrades.

References

- www.startup.si/en-us/startup/45/booking-and-cost-optimization-of-transport-with-goopti
- www.goopti.com/en/

10. GoOV APP

	
Type of service	Public transport smart travel assistant
Country	Netherlands
Address	GoOV BV, Winthontlaan 200, 3526 KV Utrecht (NL)
Website	www.go-ov.nl
Email	info@go-ov.nl

Overview

Description of the service



GoOV (OV or 'openbaar vervoer' = public transport) is a **smartphone App that supports independent travel with public transport** in the Netherlands.

GoOV acts as a smart travel assistant (not a route planner) that supports a traveller step-by-step from door to door, with detailed route navigation and up-to-date dynamic public transport information. It provides travel instructions (text or icons) at the right time (based on the current location), identifies any travel deviations and advises alternative travel routes.

Travellers who need more guidance can be continuously monitored, passively or actively. Parents and supervisors can follow the journey through the online GoOV portal. If the traveller gets stuck during the trip, does not know what to do or panics, (s)he can also call the helpline, that takes action to help them reach the final destination (by public transport or, if this fails, by sending a taxi) via a **'home delivery guarantee'**.

The **App can support various vulnerable groups** in learning how to use public transport independently: people (including children up from 11 years) with a mental disability, brain injury, cognitive disorder, autism, visual impairment, psychiatric disorder, elderly people, etc. There is also a version with icons, that can be used by people who are illiterate, non-native speakers, people with dyslexia, etc.

The GoOV App can be used throughout the Netherlands (only public transport on the Wadden Islands is not supported). It works for all forms of public transport.

In rural regions it works very well, because community and volunteer/community buses have also been integrated in the App. The only inconvenience is that for the time being, real-time data is not yet available for all these services. The poor accessibility of destinations by public transport can be a deal breaker.

There are some **issues with underground GPS positioning** in the metro (Rotterdam and Amsterdam). To solve this, by mid-2019, all metro stations should be equipped with beacons. Also, metro stations are considered as one location in Google Maps, whereas in reality there are four entrances which can be confusing for GoOV users. Volunteers from the municipality are therefore now **mapping all entrances** and entering them into OTP (open trip planner).

In 2012, the first version of the app (then called 'OV-buddy') was released and tested. In 2013, it was further developed and retested and then a definitive prototype was delivered. In 2014, a testing ground was organised in which over 100 persons travelled throughout the Netherlands with the help of GoOV. The GoOV BV (ltd. company) was founded in 2015.

Usage of the service

After an **initial training session** in a small group (+/- 5 travellers and their parents or coaches), to show how the app works and what to do if there is a problem, there is a **training period of four to eight weeks**, in which trips to the most common travel destinations are practised together, until the parent/guardian/coach indicates that the person can make the journey independently. Then, there is a **return session** to discuss how it went and how to continue.

1/3 of the users use the app as a **temporary learning tool** for six months to one year; afterwards they are able to travel completely independently. The subscription can be reactivated if they need it again (e.g. when they change schools and have to learn a new itinerary). 2/3 keep on using the app for **permanent assistance** of whom 1/3 will need the helpline.

Clients are encouraged to travel independently and safely by public transport. If they get lost, they can call the helpline. **90% of the clients use GoOV to travel to school, another main client group is seniors.** But many others can benefit from it as well (cf. above).

About 1.000 people have used GoOV so far. 84% keeps using public transport.

What facilitates the running of the service

GoOV users are recruited and selected according to an **intake process with competence check**. Candidates must meet several criteria, e.g. they should be able to:

- use a mobile phone with touch screen;
- move independently outside their home or facility;
- understand information on the screen;
- follow the travel instructions;
- not panic if something unexpected happens and ask for help if necessary.

This screening is quite thorough and gives a good idea as to whether GoOV is an appropriate tool for a particular person to use.

What also works well are the training sessions: in very small groups, experienced GoOV trainers familiarise users with GoOV and this creates a sense of trust.

Most young people with a disability, despite their limitations, are quite handy with their mobile phone. If they can use it to travel independently, their self-confidence grows.

Travel advice is continuously adapted to the current situation of the traveller and the public transport and – depending on the set traveller profile – provides updates on the current trip.

Seven years ago, the founder of GoOV, Lars Nieuwenhoff, was working as Innovation Director at SIZA, a large disability care organisation in the Netherlands, when he came up with the idea, in order to improve the personal mobility of people with a mental disability.

The GoOV app makes use of various **open data sources** (GPS, google maps, current public transport information) which keeps the cost as low as possible. In the Netherlands, all PT operators (including community and volunteer buses) are obliged to supply data on their services to the National Database of Public Transport (NDOV).

Convincing users to switch from taxi to public transport is a challenge. Children are overjoyed that they don't have to go by taxi to school. But **for parents, it is very difficult to 'let go' of their child**. They must be willing to give it a chance and change their behaviour. GoOV also requires their active involvement (attend training sessions, practise together).

It helps a lot if the municipality – who is in charge of organising and financing school transport – actively promotes GoOV and offers incentives to give it a try. Also, users are informed very clearly about the cost (how much does the PT pass cost, how much does the app cost, how much can they save on taxi costs) and GoOV staff also help with the administrative procedures.

Performance on transport poverty reduction

The GoOV app offers a relatively low-cost solution that enables people who have difficulty taking public transport on their own to travel as safely and independently as possible.

About 20% of the people who currently rely on customized transport can benefit from the use of GoOV. Being able to use PT independently boosts their self-confidence and participation in society.

Resources used

A fund was set up to offer technological assistance to people with a disability, helped to finance the start-up of GoOV. Additional funding came from subsidies and prize money. GoOV also received support from the Dutch princess Laurentien. Transport for people with special needs is one of her priorities and she has helped to put the topic on the political agenda and to get in touch with the right people.

Special needs transport to school by taxi, is expensive. In the Netherlands, it costs on average about 2,750€ per student per year. If a student can use public transport instead, with the help of GoOV, the cost amounts to about 1,500€ in the first year, and afterwards 1,000€. This means substantial savings for the municipality (who pays for school transport). Institutions for disabled people can also save costs for transporting clients to and from the day care centre or work. In addition, supervisors save time because they don't have to accompany them on their trips.

However, the main advantage of GoOV is not that it reduces cost but that it allows people to travel independently and participate in society.

The GoOV starter package costs 650€ (6 months). Included are the GoOV app, the online portal, the helpline, 2 training courses and a 'home delivery guarantee' to and from the

traveller's two main destinations (e.g. home to school). Afterwards, users can subscribe to the different services, depending on their individual needs. **A monthly subscription to GoOV costs 20€ (use of the app only) or 45€ (use of the app + support from the helpline).**

In addition, of course, a public transport pass is needed. GoOV negotiates with the main PT operators in order to obtain a reduced price for GoOV users.

Specific legislative, regulatory, and organizational environment

In the Netherlands, there are several laws organising the transport of students with special needs to school (and other destinations) and people with a disability in general.

The most important one is the 'Wet leerlingenvervoer' (school transport) which concerns about 80,000 children. In addition, the 'Wet jeugdvervoer' deals with transport to leisure activities for young people (e.g. to sports activities, music lessons etc.). From the age of 16, they are covered by the 'Wet maatschappelijke ondersteuning' (Social Support Act). Some people receive a 'Persoonsgebonden budget' (PGB, personal budget) that is provided by their health insurer; they can use this budget to finance the purchase and use of GoOV and sometimes also the public transport pass. In all these cases, it is the municipality who pays for these transport services. So, the municipality can save a lot of money if people are stimulated to use PT – with the help of GoOV – instead of using customized transport.

In the Netherlands, all PT operators (including community and volunteer buses) are obliged to supply data on their services to the National Database of Public Transport (NDOV). The availability of open (and real-time) data on available transport options is an important prerequisite for the implementation of GoOV.

GoOV fully complies with the GDPR (General Data Protection Regulation), which is important because the app collects and processes users' personal data.

GoOV was developed by Eljakim, INN4CARE and Siza, and made possible in part by the Technology Fund, in which NSGK (Dutch Foundation for Handicapped Children), Siza, Groot Klimmendaal and Pameijer collaborate on technological innovations for people with disabilities.

GoOV mainly collaborates with public transport companies, politicians, municipalities, schools and care institutions. The municipalities' tender for the transport of students states that as many people as possible should be encouraged to travel independently with public transport. For taxi companies, cooperation with GoOV ensures that there is less of a discussion on this. In Rotterdam, for example, GoOV is a subcontractor of one of the taxi companies providing student transport. There are not enough taxi drivers anyway, so this is a win-win situation. Public transport companies gain new clients and are often willing to give a reduction on PT passes for the first year. PTOs also train their drivers in how to deal with people with disabilities.

Other interesting GoOV partners are 'Society Impact', a lobby organisation that does projects for vulnerable groups (princess Laurentien is also involved in this) and 'Vita Valley', a network organisation that tries to solve complex issues by transcending silo thinking.

GoOV is a lean organization. Management, sales and technical support are carried out by GoOV's own staff. All other services are purchased through partners (trainers, ICT, telephone helpline, all support services for the back-office).

GoOV collaborates with a number of organisations that offer similar or additional services for people with a disability (Samen Reizen met..., Carolien Aalders Training & Advies BV,

BlueAssist, MEE) and also public transport operators (Connexxion, Arriva, Syntus) who help by recommending and selling GoOV to municipalities and care institutions.

Good practices elsewhere

There are **competing APPs** (9292 and various OV travel planners, Moovit, Offi Public Transport Buddy, various OV trainings, 'Mee op weg', OV4U, Radar, BlueAssist, OVcoach, Safe on the road) but GoOV is the first *dynamic travel guidance service* for public transport in the Netherlands, taking into account the current travel location and relevant travel information on the route.

GoOV does not require the user to enter any text (contrary to other apps): clicking is enough, which is a unique selling proposition for people with a mental disability. There is also a helpline to offer additional support.

People with a disability need different products and services. Some need an App, some need a volunteer to accompany them on their travels. Therefore, GoOV has looked for collaboration with partners that offer such additional services. Those services are bundled in 'De Reiskoffer' (a suitcase full of travel solutions). 'De Reiskoffer', besides GoOV, contains: the Buzz Buddy, Samen Reizen met, Public Transport passes offered at a reduced price.



The **Buzz Buddy** is a simple device that tracks via GPS if a traveller deviates from a planned route. First, this route is practised and trained together with a volunteer (parent, supervisor, etc.). Then, the user can set out on his/her own. The set followers (supervisors, parents, carers, family) or the helpline can keep track of the traveller online. If

necessary, they can support the traveller by telephone or (s)he can also call for help on the Buzz Buddy. The starters' package for the Buzz Buddy (track & trace device, portal, SIM-card, helpline support, training) costs 765€ (6 months). After 6 months, users pay a monthly fee (starting at 30€/month without and 55€/month with helpline).



Samen Reizen met (travel together) is a service whereby enthusiastic volunteers (job-seekers) travel along to help persons with a disability to learn how to travel to school by bike or public transport. During this process (that can take a few weeks, depending on the pupil's needs), regular consultation takes place between all parties (municipality, school, pupil, supervisor, parent) to monitor the progress.

Covenants are concluded with all parties, to achieve joint responsibility and support. Carolien Aalders Training & Advice Bureau coordinates this project. The municipality pays the costs of travelling by public transport or bicycle for the student, as well as the costs of travelling by the volunteer. To stimulate cycling to school, the municipality may even consider providing a bicycle.

MEE op weg is a project similar to Samen reizen met that exists in several regions in the Netherlands. It is a project whereby people with a disability learn to travel as independently as possible with the help of a buddy: by bicycle, on foot or by public transport. Participants are linked to a volunteer. These volunteers are trained by MEE. Together with the volunteer, the participant draws up an adventure plan that describes which route will be practised. Target group consists mainly of school children with a mental disability, but other target groups are also possible (elderly people, people with a physical disability).

The Belgian app **Viamigo** is quite similar to GoOV. It is an app that allows people with a disability (or other target groups, e.g. elderly people) to travel independently. A coach keeps an eye on them from a distance and follows them in real time. In case of problems, the coach can trace the user via both the Viamigo website and the smartphone and take immediate action. This is how Viamigo works:

- The user learns a new route, with the assistance of a coach,
- The coach registers this route on the Viamigo website,
- The user selects a trip to make; the coach receives a notification,
- The coach gives green light for the trip and follows the user in real-time.

The coach is notified when the user deviates from the route, when (s)he enters or leaves a 'dangerous' zone, when the speed is too high or too low, and when the user's phone battery is low. With Viamigo, the coach is always someone who knows the user personally (e.g. a guardian or family member). There is no call centre. Also, Viamigo does not offer real-time navigation; it only tracks the user (similarly to the Buzz Buddy, cf. above).

Viamigo was developed by Thomas More and IMOB, 2 Belgian universities. It is marketed by the UHasselt spin-off ABEONAconsult BVBA. In 2017, the rules on 'personal assistance budget' (PAB) were changed in Flanders, which gives people with a disability more freedom to choose how to purchase care and support services. The switch to PAB will create more chances for services such as Viamigo.

Critical analysis on business potential

The App can support various vulnerable groups in learning how to use public transport independently.

Currently, there are only a handful of users with a psychiatric background. This is mainly because the financing system in this sector is under enormous pressure.

In the future, also blind people and people with a physical disability (e.g. wheelchair users) will be targeted. There are some technical limitations. For example, with the current state of the art, GPS positioning is not yet accurate enough to allow people with a severe visual impairment (esp. blind people) to rely on the app for independent travel. When Galileo (the new European GPS system) is launched (probably end of 2019), new tests will follow. With regard to wheelchair users, information about the accessibility of PT stops is needed in order to be able to plan the route.

It is perfectly possible to implement GoOV in other regions and countries as well – provided that open data on public transport (also in real-time) is available. In the Netherlands, all transport operators have a legal obligation to share their data. This is not everywhere the case. In Germany, for example, open data is only available for about ¼ of the PTOs.

GoOV is already fully operational in Belgium: all public transport data have been integrated so it would be ready for use. However, it has not been put on the market yet because it was difficult to get in touch with care institutions and municipalities, to start up a concrete pilot.

In other countries, the App would need to be translated, but this is not a major issue.

GoOV pilots have already been developed in several other EU countries: Belgium, UK, Germany, Finland. Transfer of GoOV to another country or region mainly implies two steps:

- data integration (importing open data on local public transport in the app)
- creating a language module.

In the case of Finland, a local business partner was looked for with the help of the Dutch embassy in Finland. Probably, the same approach will be followed in other countries.


In order to set up a concrete pilot, the following steps are needed:

- Find a municipality who wants to test it,
- Find a local call centre that has a social (non-commercial) approach,
- Find a taxi company that wants to collaborate (in case a PT trip fails),
- Find a good solution to pay for PT (PT pass at a reduced price).

References

- www.go-ov.nl
- www.dereiskoffer.nu
- www.viamigo.be
- Van Dijk L. et al. (2016) "Apps ter ondersteuning van zelfstandig reizen voor personen met een verstandelijke beperking"

11. Local Link

	
Type of service	Rural transport scheme
Country	Ireland
Address	Various – 17 Local Link offices
Website	www.locallink.ie
Email	Various – 17 Local Link offices

Overview

Description of the service

Local Link is the **national brand for rural transport in the Republic of Ireland**. Yet, what is recognized nowadays as “Local Link” has started from a Rural Transport Programme launched in 2007, which in turn was developed out of the success of the first Rural Transport Initiative pilot scheme which started in 2002. Since then, the system has been experiencing a solid development over the last 16 years.



Social inclusion concerns lie at the heart of Local Link and this initiative has been growing with the withdrawal of commercial services from rural towns, where the cost of provision was greater than the revenue accrued.

The service used to cover 36 geographical areas, but it was restructured in 2014 in the current **17 areas** (see figure on the left), where the service currently operates, managed by **voluntary management committees, the so-called Local Link offices**. These offices ensure that the rural transport programme best meets the needs of users from a social inclusion perspective, by promoting a wide range of transport options that go beyond the provision of bus

services, including community/voluntary car schemes, car-sharing, rural hackney services and night time services which are inter-connected with the other public transport systems deployed all over the country.

Most of the services are contracted by the National Transport Authority (NTA) and are managed by the seventeen Local Link offices throughout the state. The services are primarily demand-responsive services, but an increasing number of regular public transport services are also provided under this initiative. In fact, whilst the delivery of demand-responsive services remains a cornerstone of the Rural Transport Programme, there has been an **increasing focus on providing regular public transport services** since 2016, in response to

an identified local demand, typically to access education / employment / health / recreational opportunities.

Usage of the service

Local Link services are basically two-fold:

- **Demand Responsive Transport (DRT)** — these services do not operate on a fixed route but respond to requests for services by intending passengers and operate by making specific trips to pick up and drop off passengers at the door. They can be operated by large public service vehicles, hackneys or community cars. According to the Limerick website (one the 17 Local Link offices), semi-flexible routes throughout Limerick can deviate up to 5 miles to pick passengers up at their own doors;
- **Scheduled Fixed Transport** — services with a regular route, stopping places and timetable.

There are no figures available about the number of kilometres performed under each service, but, as said before, it is said that the number of services based on regular public transport services is increasing. Local link is deployed all over Ireland by nearly 900 drivers, working for **over 400 private operators**. Some concrete key performance indicators listed by the Strategic Plan for 2018-2022, include the following:

Main indicators of service usage

Category	Indicator	Ireland (2017)
Demand	Passengers transported	1.9 Million (+5,6% than in 2016)
Supply	Service trips	150,000
Demand	Average passengers per trip*	12,6
Supply	Km	11,8 Million
Supply	Average km per trip*	78,7 km

* Calculated using the existing reference figures

What facilitates the running of the service

The Irish territory features highly dispersed rural populations. In such places, there is not enough population that can demand profitable transport services. In consequence of this, the absence of a market for conventional private operator was definitely the main driver that facilitated the emergence of Local Link. The NTA had to step in and organize the public transport services to guarantee that citizens living in these areas had suitable transport options, which might involve community-based schemes.

The emergence of this problem led to the other main driver which consists in the political view of the national government. This was capable of developing a **suitable regulatory framework and to integrate rural transport in the overall public transport system**. Arguably, this political endorsement was a cornerstone for the success of Local Link.

The local offices are due to preparing **local transport plans** as well as putting into local area plans and local economic and community plans. Consulting with participative networks is also regarded as valuable for the project success.

A great level of **interaction and coordination with local authorities** is needed, in order to secure assessment of strategic transport needs and in the development of proposed transport plans for local areas. The presence of the NTA is also essential to assure **compliance and standardization of transport planning, modelling, mapping and ticketing**.

The commitment of the NTA offers the public transport users some reassurance that the public transport service will be reliable. A sign of how indispensable the NTA is to boost the service, is given by the fact that, thanks to promotion carried out by the Authority of Local Link websites, they have more than doubled its traffic (a 247.8% increase, from 8,363 accesses in 2016 to 29,087 in 2017).

A core challenge that the Local Link offices are currently dealing with, lies in **fostering volunteerism in the provision of transport within the different catchment areas**. This includes building a panel of vetted participants in community car, car-sharing, volunteer driving and passenger assistance.

Performance on transport poverty reduction

According to data from the NTA, in 2017, 0.2 million passengers have required assistance from the driver, which is nearly 11% of the overall number of passengers. These figures are aligned with the overall number of people with disabilities living in Ireland. The "Ireland 2040" plan estimates that there are approximately 650,000 people with a disability in Ireland in 2016, comprising 13.5% of the overall population. These figures are a recognition that the Local Link service is age-friendly, in the sense that **provision of passenger assistance is a core element of demand responsive and flexible rural transport services**.

Besides offering a convenient transport option for people living in very sparsely populated areas, where private transport operators have stopped operating due to their private commercial interest, the Local Link also offers **free transport to all people living in the State aged 66 years or over** (some people under 66 also qualify, if they meet certain conditions).



It is also worth mentioning that the review of key performance indicators is in progress, to better understand the impact of the initiative, both socially and economically. It is also in progress an update of transport deprivation index for Ireland, which was first developed in 2007 by Pobal (a not-for-profit company that manages programmes on behalf of the Irish Government and the EU) and measures **the time it takes to access bus and rail services in each electoral district assigning an accessibility score between zero and ten**.

Resources used

The majority of operators that provide rural transport services nationally through the Local Link programme operates under **gross cost contracts**, which are **competitively tendered by the NTA**.

Funding of this programme currently benefit from **two main streams, one from the Department of Transport, Tourism & Sport, and another one from the Department of Social Protection (which funds the free travel pass scheme)**. Besides funding from state government, other sources of income include fare income and the provision of transport services to other organizations, which is still marginal.

Main indicators of resources used by Local Link

Category	Indicator	Ireland (2017)
Staff	Number of employees allocated to Local Link	489  (+29% than in 2016)
Funding	Dept. of Transport	13.7 Million
Funding	Dept. of Social Protection	1.5 Million
Revenues	Revenues from fares	7.3 Million  (+5.8% than in 2016)
Operational costs	Cost per km*	1,20€
Operational costs	Cost per passenger transported*	0,75€

* Calculated using the existing reference figures

One of the most important lessons that one can extract from this description is that funding allocation is derived not only from the transport department but also from social security. **Mixing and matching funding options demonstrates the competitiveness of the model in terms of achieving greater impact and efficiency in attaining social exclusion problems related with transport and lack of access.**

According to the funding actually spent in the programme for the whole country, one can estimate an overall cost per km of 1.20€ and a cost of 0.75€ per passenger transported, which scores very high when benchmarked against other existing initiatives and shows that **this solution is cost-effective**. For example, costs per vehicle/mile in non-metropolitan areas across Great Britain amounts to 1.20£, according to the latest figures released by the Better Transport campaign association (2018).

Revenues from the farebox of the Local Link service are increasing, and account roughly **48% of the total costs required to run the Local Link programme**, which seems a very reasonable number, considering that several persons don't pay a fare, as they are entitled to the free travel pass scheme. It also represents value for money, carrying approximately 1.9 million passengers annually, and functioning on roughly 1.2% of the total annual investment in public transport.

Specific legislative, regulatory, and organizational environment

The programme was established to operate only in cases of market failure, as that **services funded under the programme should complement and not compete with the existing public transport services**. The service is currently managed directly by the NTA, which is a statutory non-commercial body, operating under the aegis of the Department of Transport, Tourism and Sport which supervises the programme, in line with the objectives entailed in the Ireland "2040 strategy" and the "Action Plan for Rural Development" (2017).

The majority of the 17 offices distributed throughout the State are managed by **independent "not for profit" entities**, established to provide a range of local transport services. These offices have members of the board and operational managers that usually hire staff to carry out specific functions, like for example dispatching tasks.

The NTA has a tight accountability procedure in force. Typically, the NTA contracts the management of rural transport services to the relevant Transport Co-ordination Unit (the Local Link office) through a Grant Agreement. Under that Grant Agreement the Units are

obliged to comply with financial, governance and performance monitoring requirements. In addition, the NTA imposes a system of **regular internal audit** on the Units.

Besides the above-mentioned supervision, the NTA examine how can the existing rural bus network within regions be better integrated with the overall public transport service deployed in the main cities, with the school transport and the health service transport networks. They also provide some expertise in terms of monitoring how existing routes can be more sustainable and accessible to the public, the potential for new routes and reflecting international best practices. The NTA also invests in the human resources associated with the delivery of the rural transport programme, to ensure that there is adequate training, capacity building and remuneration for all involved.

Good practices elsewhere

There are a few examples of integrated policies at regional level, such as the one founded in **New South Wales (NSW), Australia**. In 2011, the legislative assembly in NSW passed a legislation which created a new agency with sole responsibility for transport in the state, called "Transport for NSW". The vision of the NSW government was for an integrated transport authority which drives better transport outcomes for the regional community. All decision-making for planning and policy is centralised within the new agency, which has become responsible for improving the customer experience, planning, programme administration, policy, regulation, procuring transport services, infrastructure, and freight. It has thus control over all forms of transport and was formed specifically to challenge the silo mentality of transport provision in NSW, achieving cost savings and avoiding duplication of services.

NSW is the most populous state in Australia, with over 60% of the population living in the Sydney metropolitan region. The remainder of the population is spread out over a vast distance, with many isolated areas lacking access to main transport corridors. To combat social exclusion in these areas, the "**community transport programme**" within Transport for NSW aims to address transport disadvantage at the local level, primarily by promoting efficient use of transport resources that exist within the community. In doing this, they target people whose access to mainstream transport services is limited by physical, social or geographical factors, with funding from the state and federal governments.

The program is centrally co-ordinated by Transport for NSW but local providers operate the services. It achieves efficiencies in this through the use of spare capacity from other services under its sphere of activity. This scheme was enabled by a strong emphasis on consultation with customers, communities, transport specialists, private industry and all levels of government.

In terms of budgeting, the Transport for NSW model is intended to bring long-term savings while maintaining the same standard of services. Hence, it is a cost-neutral solution to rural transport, using existing resources and infrastructure.

Critical analysis on business potential

This system can be replicated in places where the transport authority and/or regulator applies a robust oversight reporting system of the current transport services. This is a guarantee of good value-for-money employed in rural areas, where traditional revenues scarce and operation resources tend to be fairly high.

Transferability to other countries would be viable **should there be an authority** that ensures that rural transport is comprehensively linked and integrated with public transport services provided by other private entities, including improved connectivity and integration with existing ticketing systems.

Technologically-wise, since the authority assumed management of the Rural Transport Programme, there has been a **significant investment in technology** particularly with regard to the development of the so called “Integrated Transport Management System”. This system provides a centralised system for the scheduling of routes and services as well as the booking of passenger on these services. Should the Local Link program assume the management of health-related services, this IT management system will need to cater for the specificities of those trips and will thus need to be enhanced and up scaled. According to the 2017 annual report from the NTA, works are in motion to enhance the functionality of the Integrated Transport Management System, which facilitates the scheduling of routes and booking of passengers on Local Link services.

As the initiative evolves from a more integrated technology software to a partnership with other relevant stakeholders like IT universities, to pave the way for electrification, automation and connectivity of the services, there is **room for new funding streams** that the NTA can help to apply, whose aim is to encourage innovation in rural transport service provision and that can potentially be rolled out as national programmes.

It would be equally important to align the strategy of increase offer of transport services with the **national tourism development plans**, especially with the growth of tourism in rural communities. An attractive and easy to promote public transport service could receive additional attention from tourists visiting Ireland.

According to the strategic plan for Local Link, there seems to exist several new business opportunities in the horizon, especially to what **health-related transport services** are concerned. It is currently in motion a process to examine the potential for the integration of this type of services with regular rural transport services. Issues rose at the time included difficulty quantifying the transport need at a national level, given the diversity of services, locations, medical conditions, etc. This is being made after several Local Link companies entered into “**service level agreements**” with their local health service organizations and started transporting several users to outpatient clinics and hospital appointments. Whilst this work is progressing well, some issues are arising that will have to be addressed during the lifetime of this strategy.

Technologies for managing a more complex system, which would include not only the traditional transport services and non-urgent health-related transport is a **technological barrier** that will need to be overcome if the programme wish to cover also this market niche, which is sharply growing.

Unlike what happened with health-related transportation, it is worth mentioning that it was also considered to expand the local link programme to cover **school services**, but it was decided that this was not a primary focus of development currently, after some pilot rural transport schemes have shown that **limited efficiencies can be achieved from this integration**. On another hand, there are administrative arrangements between the department of education and a private company called Bus Éireann that the transport authority don't wish to jeopardise. Hence, it is not a priority to act on this upgrade for the moment.

In addition to the above, it would be interesting to **look for sponsors** which could guarantee an extra revenue stream to the initiative. Pharmacies and other companies and products that have a tight relationship with the main target public of Local Link could be contacted to this respect and help to keep the service operative and financially sustainable. It would be equally important to **expand the range of services and also include transport of goods (rather than only passengers) and transport of tourists as well.**

Generally, the Local Link framework can be implemented everywhere, where certain preconditions are met. These are: strong political endorsement and strong participative engagement, just to mention two of the most important ones.

The example from Ireland also shows that there is a need to build long-established arrangements, not on a relatively ad hoc basis but rather well-structured and with multiple intermediate structures that can guarantee the involvement of the local stakeholders. A **clear regulatory and policy footing** is essential to pave the way for a new model of public transport that can support rural populations, particularly as the proportion of elderly people in rural and some regional areas will continue to increase in the most advanced countries.

The current main challenges lie in expanding the Local Link services to health-related trips in the short term and to school transport and to tourist's specific needs in the long term. This will require a suitable technological equipment that can help managing the transport needs of these people. There is also some potential to guarantee sponsorship and publicity from companies.

Potential savings sorted out from integration of non-ambulance transport services into Local Link could amount to 30 million euros annually, according to a report issued in 2011.

It would also be interesting to develop a **pilot with low carbon emission vehicles**, especially making use of automated vehicles, connected to road infrastructure, over the course of the next years. Ireland can be a laboratory to experience this, as it could potentially bring enormous benefits for the mobility system as a whole. Especially because there are several funding opportunities for this deployment plan in the frame of the third Mobility Package released by the Juncker Commission.

References

- Bettertransport. "The future of rural bus services in the UK". Tracks. Transport, policies, practice. <https://bettertransport.org.uk/sites/default/files/research-files/The-Future-of-Rural-Bus-Services.pdf>
- Realising our Rural Potential. Action Plan for Rural Development
- www.locallink.ie
- [NTA \(2017\)](#). "Annual report & financial statements".
- RTN (2011). "Towards integrated rural transport. Achieving more for less".
- www.transportforireland.ie
- www.npf.ie/about/
- ec.europa.eu/transport/modes/road/news/2018-05-17-europe-on-the-move-3_en

12. Locomobile

	
Type of service	Social taxi
Country	Belgium
Address	N/A
Website	www.servicelocomobile.be
Email	N/A

Overview

Description of the service

Created in 2011, La Locomobile is a **social taxi** service transporting (most of the time) single individuals at an affordable price. It's a door-to-door transport service available in 19 communes of the Province of Luxembourg, which is the largest province of Belgium, but with a very low population density. The rural character of the province means that the residents must rely on their cars to get to a specific destination.

Locomobile's objective was to create a mobility service to compensate the insufficient offer of public transport. Its aim was to set up a structure, in partnership with the municipalities and the Province of Luxembourg, to enhance as best as possible the societies of the social and civic economy.

The service's target group is represented by the vulnerable people facing mobility difficulties in their daily life. Most of them are **living in rural areas** or are people willing to reach activity locations in the countryside. It is also offered to **less mobile or socially disadvantage people** (including all people aged over 65 years and the beneficiaries of RIS (Revenu d'Integration Sociale), **people looking for work, beneficiaries of the help of the CPAS** (Centre public d'action sociale).

The Locomobile's call centre analyses trip requests and organise a ride if there is no other offer from public services (TEC, SNCB) or other local initiatives and if the user is resident in one the one of the participating communes. The call-centre can be reached from 10:00 to 18:00 from Monday to Friday. However, applicants are encouraged to anticipate and communicate their needs a few days in advance.

Usage of the service

The latest available data reveals that **the 14 Locomobile vehicles in operation (cars and minibuses) have done 20.200 trips** in 2017 compared to 14.400 trips in 2012, running for more than 500.000 km and improving the mobility of the beneficiaries.

To use one of the Locomobile's cars, the client needs to **pay a flat rate of 2,87 € for any journey of less than 8 km, 0,36 € per kilometre travelled for longer journeys and an hourly**

fee of 8 euros if an assistant needs to help the applicant out of the vehicle (for example, to the hospital). These prices (since October 1st, 2017) are for each person transported in the vehicle, except if they are picked-up from the same address.

The evaluation of the service is positive since 100% of the users say that they could not move without. However, some mentioned that there is **a lack of availability due to the success of Locomobile**. The drivers are doing **6 to 8 trips per day**, which rarely lasts less than 15 minutes in the Province of Luxembourg. Most of the users choose Locomobile to do some shopping or due to medical visits.

What facilitates the running of the service

One of the key factors of Locomobile is that **there is no competition and people depend on it**. Another positive aspect is its **non-profit, community-based approach**. In addition, Locomobile offers a **flexible transport service**, which picks people up whenever and wherever they want.

The main driver of the implementation and the present running of Locomobile is the **support of the public administration**. Indeed, the Province of Luxembourg is compensating the difference between the revenues (fees paid by beneficiaries) and the costs (car purchase & maintenance, HR salaries, etc.). Without public funding, the service could not run. The Province of Luxembourg is also in charge of the call-center responsible for answering the phone and organizing the drivers' schedule. This scheme permits to decrease the running cost for the company responsible for operating the Locomobile service.

However, the biggest barrier is to keep a sustainable budget. There is an increasing demand and to be able to invest in new vehicles and new commitments, new partners need to be found.

Performance on transport poverty reduction

The Locomobile reaches low accessibility social groups and areas. It is a complementary offer to public transport. If public transport is not accessible or available in rural areas, a car or a service like Locomobile are needed. It supports elderly people, children or people who don't have car. It allows people to get a key services at reasonable cost, in reasonable time and with reasonable ease and safety conditions.

Resources used

The Province of Luxembourg provided the vehicles. It also provided the vehicle lettering and the costs associated with the promotion of the project.

The municipalities and/or the CPAS will bear the costs related to staff, registration fees, fuels and maintenance of vehicles, and the costs of the call-center operator and the training of the drivers. To rationalize the costs, the municipalities should select a single operator who will manage the schedules and the organization of the journeys. This centralization will also be beneficial when a balance sheet should be drawn from their activities.

In 2018, the Locomobile service had an **annual budget of 500.000 euros**, to which the Walloon Region and the partner municipalities contribute.

Specific legislative, regulatory, and organizational environment

The Locomobile employs **around 15 drivers**, several of whom are under Article 60 contracts, which means that **they function as an insertion company and offer jobs and training to people who have been unemployed for a long time or who have had a difficult life**.

Good practices elsewhere



One good practice operated in some of the communes in Luxembourg, is the **Flexibus** or also called Rufbus ("Callbus"). These small buses are operated by a bus operator (Sales-Lents) and circulate within the corresponding commune.

Upon request, the bus picks the client up at his given place, takes the client to the address of his choice and again back home if the client requests it. Anyone wishing to move

spontaneously and flexibly on the territory of the municipality can take advantage of the Flexibus. For some communes, the service is for free, for other communes the clients must pay for each trip or can buy a monthly or annual subscription. So, the prices of a trip are varying between communes. The tickets can be purchased within the bus. However, there is a need to book a seat by calling the call centre (minimum 45 minutes before the chosen departure). It operates from Monday to Saturday.



Another good practice is the service of **Kussbus**, which was founded as a start-up by Utopian Future Technologies SA in 2017 and provides a (nearly) door-to-door passenger transport service in Luxembourg and the cross-border regions. Their main idea was to find a

way to make people more likely to travel by buses than their own cars. The bus shuttles have 19 seats, which get reserved from a smartphone app.

An algorithm aggregates requests from multiple users in the same direction and assigns them a common (virtual) stop near their home and workplace at the time the users have chosen. However, the common stop needs to be easily accessible on foot or by car and should always be near free car parks. The algorithm defines the virtual stops in a way that allows for minimal walking distance, while remaining as time-efficient as possible and picking up as many people from the same stop as possible. Kussbus is not a transport company but a technology company, that's why it takes care of the whole technology (app with algorithm) and customer relations.

The buses are provided and operated by the private bus company Emile Weber. Investors and the Ministry of Economics support Kussbus. It offers cross-border journeys between Habay (Belgium) and Kirchberg/Glacis (Luxembourg), Arlon (Belgium) and Kirchberg/Glacis, and from Thionville (France) to Kirchberg/Glacis. Luxembourg has a lot of cross-border commuters, which especially work in Luxembourg city.

Kussbus guarantees of having a seat and making a direct journey. The route is also defined according to the traffic on the roads. It adapts to the needs of the user and not the other way around. As Kussbus mentioned, it records around twenty daily users on average on this line. For one-way trip between Arlon and Kirchberg for example, the client must pay 5 euros. The clients pay by card. The movement of the shuttle, the client has reserved a place in, can be followed minute per minute. In addition, the reservation is flexible. If the client works a bit longer, he can use another one at another time at no extra cost. However, this is only the case if there is still a seat available. New routes are developed based on demands.

Critical analysis on business potential

It needs to be considered that services like Locomobile are **non-profit initiatives**. They need a sustainable budget to be competitive. There is a high demand and to be satisfied and the service could be facilitated using a smartphone app. This might attract more users.

Potential new users of this service could be groups of people, who want to use less their car for example to save costs or reduce emissions. However, this has some limits. The **technology needs to be financed and IT specialists must be employed** to take care of the functioning of the app. The other big issue would be that **especially elderly people are not that familiar with using a smartphone** and some people don't own a smartphone.

This kind of service can be implemented everywhere. If other municipalities could profit of the same funding of the state, they could also implement a service like Locomobile. However, it also depends on the municipality and its legal and regulatory conditions.

If permanent funding by the Province or other stakeholders is provided, the on-demand services can have a big potential especially in rural regions where public transport knows its limits. Permanent funding allows changes and innovative solutions. However, this needs to be decided together with all the stakeholders. The choice of new stakeholders is important (this includes the carrier organization and transport operator).

References

- www.province.luxembourg.be/fr/le-livre-blanc-de-la-mobilite.html?IDC=4626#.XC4s7FxKjD55
- www.dhnet.be/regions/namur/locomobile-parfois-victime-de-son-succes-5acb9aaacd702f0c1acc486f
- www.lesoir.be/151843/article/2018-04-18/luxembourg-la-locomobile-vrai-taxi-social
- www.sales-lentz.lu/fr/individuel/flexibus
- www.siliconluxembourg.lu/kussbus/
- <http://paperjam.lu/news/kussbus-se-jette-dans-le-grand-bain>
- Luxembourg 2010. "Locomobile. L'air de rien..Je me déplace"

13. PickMeApp

Name/Logo	
Type of service	Ride-hailing service targeted to vulnerable users
Country	Italy
Address	Via Centomani, 11, 85100 Potenza PZ (IT)
Website	www.pickmeapp.it
Email	info@pickmeapp.it

Overview

Description of the service

PickMeApp is a **market-based door-to-door smart mobility solution specifically tailored for children, elderly and disabled people** but suitable for all citizens living in small and medium-sized cities. Using a wearable tracking device and a mobile App, PickMeApp vehicles (typically cars and minibuses) drives kids and seniors – autonomously and in place of their parents and relatives – safely and at an affordable price (4,00€ per single trip).



Through the smartphone App "PickMeApp Mobility", users can register to the service, profile themselves and other travellers like relatives and friends and recharge their virtual wallet. Users can book one or more trips by simply entering the departure/pick-up point, the destination address, date and desired travel time or time of arrival of the needed trip. Registered users can also book their trips by phone via the PickMeApp call center.

The user-side app allows passengers to view the precise pick-up time and estimated arrival time. They are notified of promotions and news on the service and receive notifications of reminders a few hours and a few minutes before the booked trip.

Users can pay for the rides or buy multi-trips packages through the App, having registered and validated their credit card or prepaid cards. Rides cannot be paid by cash.

Being a collective ride hailing transport solution, the **optimization software**, derived from the logistics sector, is at the heart of the system. It allows, on the basis of all the received bookings, to optimize the route of the PickMeApp bus or car, so as to be able to transport several users at the same time. The resulting travel plan is made available on the driver app and visualised on a smartphone or tablet. In this way, drivers perform individual bookings in a dotted and door-to-door manner.

A **back-end management software** is directly connected to both the route optimization algorithm and the mobile App, allowing the operation manager to monitor the service: check-in and check-out times, verifying if they are in line with those of pick-ups and drop-offs or if there have been any advances or delays; check the status of orders (pending, made, cancelled, reimbursed, etc.).

The operation manager can also check the customer profile, set the drivers, the FAQs to show on the App, the service time depending on the customers, decide which notifications to send via the App, create promo-code or promotional campaigns, get a report of the receipts of the trips, manage the assignment of the tracking bracelets, insert new reservations or delete them.

The "data report" section on the management software collects daily, weekly, monthly and yearly metrics related to users (number of registered users and profile) and trips (number of journeys made and number of passengers transported, subdivision in bookings received in advance or on the same day when service is required). It also allows to view for each user when the last reservation was made, how long the virtual wallet was not recharged and how many runs in a week. In addition, it is possible to check those with fewer credits and those who have registered but never used the service, so that plan personalized communication and marketing actions for each type of user.

PickMeApp works both with owned licensed vehicles and affiliated car/van/minibus hire with driver local companies that act as franchisees. These companies and their drivers must guarantee the company's quality standard and their drivers have to pass an examination process (including a drug test).

The service was launched in September 2017 in the municipality of Potenza (67,000 inhabitants), the city where also the company PickMeApp has its headquarter. Potenza, in the Basilicata region, is the highest regional capital and of the highest provincial capitals in Italy (816m of altitude).

In September 2018, PickMeApp started its operation also in the city of Salerno (135,000 inhabitants), a seaport city located along the Tyrrhenian Sea in the Campania region.

PickMeApp booking steps



Fig. 1: Schemata iniziale dell'app

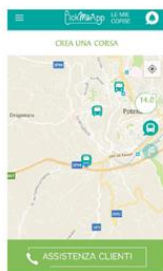


Fig. 2: Home Page dell'app



Fig. 3: Profilo viaggiatori



Fig. 4: Portafoglio virtuale

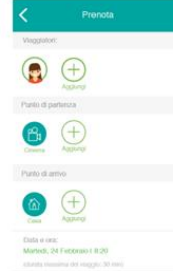


Fig. 5: Crea una corsa



Fig. 6: Corse in programma

Usage of the service

PickMeApp was born to satisfy the mobility needs of non-autonomous individuals such as children (9-14 years), the elderly (over 65) and users with reduced mobility but is also used by other citizens. While for people who do not need assistance the urban mobility offer can be very wide, ranging from private car to public transport, vulnerable groups of the

population often do not see their mobility needs satisfied with smart and customizable solutions.

So far PickMeApp has obtained the following **performance** in the city of Potenza:

- Over 4,500 downloads of the PickMeApp Mobility app;
- Approximately 3,800 registered users on the app and 1,300 profiled travellers;
- Over 1000 users have used the service at least once;
- Approximately 5,000 uses in 2017 and approximately 13,500 uses in 2018;
- 100 trips on average per day.

What facilitates the running of the service

The key elements of the PickMeApp mobility solution are its door-to-door collective transport configuration that makes the service very competitive and personalised for the users and of course the IT elements that makes the service functioning in a smart and innovative way (user and driver app, optimization algorithm and back-end software).

A key element of the PickMeApp system is also the real time tracking function of the route and position of the users. The use of the traceability bracelet allows children, elderly or disabled passengers to check in and out of the PickMeApp vehicle and to parents or relatives to check their positioning for the entire time spent on board the vehicle. These are verified via a radio-frequency identification (RFID) of the user but also the driver can check-in and check-out them by clicking on the driver app.

In contrast to the complexity of the software, the “hardware” of PickMeApp is very simple: the system works with smartphones both for the users and the drivers. The latter can use a tablet on-board the vehicle for a better visualization. Minibuses and cars have to be equipped with a GPS device connected to the back-end system to allow real-time monitoring and to guarantee the carriage of passengers with wheelchairs thus being equipped with a backside lift.

In addition to the smartphone App, the company quite immediately established a call center to allow users (especially elderly people) to book their rides.

The main challenge the company has to face is to increase ridership in order to combine more trips together thus increasing revenues and profitability of the service.

Performance on transport poverty reduction

PickMeApp offers a personalised, flexible, and smart mobility option for three of the most vulnerable categories of people: **children and young people, elderly and people with a permanent or temporary physical impairment**.

The idea to focus specifically on these vulnerable user groups demonstrated to be quite successful for two main reasons: their mobility needs are quite often unsatisfied and limited to certain transport modes only (e.g. public, special or school transport if and when available or use of the private car as passenger of a driving parent or relative) and, consequently, the willingness to pay for these users and their families is higher and can afford the price of € 4.00 per trip.

This was confirmed by the profiles of the users currently using the service and the positive feedbacks the company received particularly on the element of being a **solution to remove their isolation and satisfy a basic need**. The fact that the service started in two small and

medium-sized cities confirmed the solution is not only viable in big and dense metropolitan areas.

Resources used

PickMeApp is an innovative start-up, registered in the special section of the Italian Business Register. In 2016, the company closed a first round of € 365,000 investment with a regional venture capital fund (Sviluppo Basilicata) and a pool of private investors. In August 2018 a second round of investment of 400,000€ with the venture capital fund SICAF EuVECA SpA was also finalised.

PickMeApp provided the following characteristics and elements of their costs structure:

- **Start-up costs:** development and maintenance of the App and the system; new App development with new features; optimization system; proprietary algorithm; costs for maintenance and optimization; legal, fiscal, etc.; communication and SEO optimization.
- **Structural costs:** server, hosting, maintenance; utilities, cleaning, printer, internet, telephone and toll-free; general corporate costs (annual communication, exhibitions, cyber security).
- **Stripe commissions or similar on sales**
- **Fleet costs:** in the event of direct sale, the cost of long-term purchase / hire of vehicles; cost for maintenance and insurance of each vehicle; cost for fuel. In the case of indirect sales, these costs are borne by the franchisee, together with the monthly fee and the percentage on the transaction.
- **Personnel costs:** director and the general manager; employed and affiliated drivers; customer care operators; secretarial costs; operation managers and project managers; senior and junior commercial; marketing manager; fees for CDA components.

Revenues comes from:

- Direct sales from the operation of owned licensed vehicles;
- Income from commercial affiliation: PickMeApp entrusts the execution of the service in other urban contexts to selected "partners", through a specific commercial affiliation contract that is based on a monthly fee for each single vehicle and a transaction fee of 7% to be calculated on the revenues.

The average cost of a single journey is 4.50€. The launch price in the test city of Potenza was 3,00€ per single ride. This strategy was chosen to let people try the solution and to retain as many users as possible.

In May 2018 the price was increased at 4.00€ per ride. Users can buy discounted "packages" to reduce this price (e.g. 30 rides at 3.60€ per ride, 100 at 3.00€ and 150 at 280€) that is slightly higher than a public transport ticket but very competitive and lower than individual travel costs of using their private car.

Specific legislative, regulatory, and organizational environment

The Italian Law 21/1992 defines the legal framework for both taxi and car-hire with driver services that are limited to vehicles used for the carriage of passengers, comprising not more than nine seats including the driver (M1 category).

Regional norms prescribe more detailed obligations and each municipality interested in having these services in its territory must have a Regulation in place and open a public tendering process to assign licenses that are limited in number according to a contingency principle linked to the number of inhabitants. Each licence is linked to a single vehicle and drivers must have a certificate of professional competence and being registered in a specific role at the local Chamber of Commerce.

The PickMeApp mobility solution, being a private collective passenger service with pre-ordered bookings, falls into the car-hire with driver market and regulatory environment but could be also operated with vehicles with more than nine seats, typically minibuses up to 15/17 seats.

These fall into another legislative framework (Law 218/2003) that has liberalised the market (i.e. each road passenger transport company respecting certain requirements can obtain an authorisation and work with the needed number of vehicles) but prescribes other more stringent mandatory elements like the provision of digital tachographs on-board each bus or minibus, driving time/rest periods and a the need of a professional driving license in line with the EU rules.

The role of stakeholders is fundamental for the service: schools, recreational centres, nursing homes, specialized medical centres, shopping centres and gyms but also local associations (i.e. of disabled people) act as demand aggregators and multipliers. Marketing and communication strategies are often linked to them. The organizational structure is composed of a team of professionals with specific skills in the fields of IT innovation and mobility.

Good practices elsewhere

There are a number of similar ride hailing services in place in different countries and cities although their scale and local context (i.e. big cities instead of small and medium-sized ones) as well as the target user groups (i.e. commuters vs. vulnerable user groups) are quite different from PickMeApp.

Outside the EU, the company **Bridj** (<https://www.bridj.com>) can be mentioned. Their solution allows passengers to book a shuttle between home and work during commuting hours through a mobile app. Launched in 2014 in Boston, Bridj started operations as market-based passenger transport provider but its IT system and concept was quite immediately integrated in the public transport DRT services of Washington DC and Kansas City (under the RideKC brand). It currently only has operations in Sydney, Australia, after the acquisition from the public transport company Transit Systems.



In Europe a newcomer on the market can be considered **MOIA** (<https://www.moia.io>), a German company part of the Volkswagen group that started to develop an innovative vehicle for urban vanpooling that has been officially launched in 2018.

MOIA started to operate as transport provider in the city of Hamburg after the acquisition of the Finnish IT company Split Finland Oy, the one that developed the software behind the ride-pooling concept Kutsuplus, which was operated by Helsinki Region Transport.

Critical analysis on business potential

PickMeApp was born, developed and matured in the first half of 2015, a period in which team members dedicated a large part of their time in defining the solution, its constraints and opportunities, the study of the market and the potential of the business, identifying and mitigating relative issues and barriers. The final configuration is the result of the work of various professionals who have made available their skills and knowledge to make the solution with high economic and social added value for both the shareowners and the users. Being a market-based solution, PickMeApp has been created with the aim of expanding the business in other cities and passenger transport market segments.

Typical **additional market segments** are those related to publicly-contracted services like special needs transport (e.g. to healthcare centres/hospitals and schools), school transport and public transport in rural areas.

For a public administration, similarly to what has been implemented in Catalonia with demand-responsive transport (i.e. TAD), it could be quite convenient to pay in total or also partially the price of a ride for the final user instead of implementing a DRT system from scratch.

The **potential of transferability** is very high because of the simple operational and scalable commercial model associated to low investments for the partners to start the service (i.e. cars or minibuses) and the pay per vehicle/use principle. Of course transferability is linked to the profitability of the service for the affiliated private partner or cost reduction for the public administration.

The deployment model of PickMeApp grants the use in licensing of the software platform (app and system) and of the routing optimization software to the franchisee (that could be a private passenger transport operator, a public transport operator or a local entity) that can use his own brand for the transport service.

The solution allows the transfer of its business know-how in terms of assistance in starting the service, in purchasing the vehicle to be used, support in delimiting the urban area to be used on the basis of the study of the roads and potential demand, and also deals with the training of drivers. PickMeApp also manages the relationship with customers and customer care activities.

References

- www.pickmeapp.it

14. Pink Taxi

	
Type of service	Taxi service
Country	Worldwide
Address	UK
Website	www.pinktaxi.io
Email	support@pinktaxi.io

Overview

Description of the service



Although about 60% of taxi passengers around the world are female, on the driver seat there is, in most of the cases, a man. A study showed that 86% of Uber drivers are male and that 98% of taxi drivers in the UK are male.

In several occasions, female passengers don't feel comfortable due to inadequate questions from the male driver, and in some cases they even feel threatened. For example, only in the USA, between

2012 and 2015 Uber received 170 complaints of sexual assault in their vehicles. Another survey of 2,040 American adults, showed that around 65% of females have been harassed. This phenomenon happens all over the world and it is not localized to one place.

In such a context, in **2006**, a women-only taxi service called **Pink Taxi** was launched. Its core idea was to provide a safe transportation facility to female passengers and provide a respectable platform for their employment. Since then, this idea has received recognition and has been appreciated in multiple countries, so that the platform became an **established brand** available worldwide.

Pink Taxi's vision is to make regular day-to-day travelling less complex and more comfortable, using high tech technology, innovative solution for drivers and customers backed by secure and reliable data base over **blockchain**. In particular, the blockchain implementation, which includes virtual wallet, driver feedback, passenger feedback, drivers subscriptions via tokens, cashless transactions through tokens, and token exchange program, ensure not only security but adds quality standards to the service level.

Usage of the service

Pink taxi has a substantial global presence stretching from the Arabian peninsula to the far eastern hemisphere, and especially to the South Asian region to South American and European regions.



Since its launch, more than **100,000 application** downloads have been made, enabling Pink companies to serve **700,000 passengers** only every year. The current objective is to group into a single application the different countries' separated platforms and to target around 30 million customers per year by 2020.

Pink Taxi currently operates in **50 cities in 18 different countries**: United Kingdom, Iran, Russia, South Africa, Lebanon, Pakistan, Mexico, Kuwait, Thailand, Mongolia,

UAE, Australia, USA, India, Malaysia, Armenia, and Turkey.

What facilitates the running of the service

Pink Taxi's development did not take advantage of any specific policies nor subsidies. Instead, it leveraged on the well-known and debated fact of female passengers being often harassed while using traditional means of transportation.

In addition, the service embeds a series of benefits and advantages that helped its diffusion and worldwide success:

- **Safety:** As it is very common to hear news of passengers getting mugged or assaulted by drivers, Pink Taxi ensures the delivery of a safe and secure service for both users and drivers. In addition, it allows riders to choose among the licensed cars and drivers nearby, whose information is accessible by the users who can see the driver's experience and personal records.
- **Transparency:** As the service is based on blockchain technology, there is absolute transparency in the information and data, which cannot be tampered. In addition, every trip data information is stored, meaning that if a complaint or dispute comes up, it would be settled easily using the data. Pink Taxi also allows users to know which amount gets to the driver, what portion will be paid as tax, etc.
- **Decentralization:** Pink Taxi has been created with decentralization at its heart. It is based on a decentralized platform that brings licensed drivers and passengers together. Here, users can choose whatever car or driver will perform their desired trip.

Performance on transport poverty reduction

Pink Taxi is targeting a very specific vulnerable users group: female passengers. These are often, especially in large cities, victims of mistreatment or even sexual harassment by male taxi cab drivers. The service addresses the **transport poverty of women** and can help them to move around without being potentially exposed to safety risks.

In this sense, Pink taxi is an established women-only taxi that has empowered hundreds of women and made them take charge of their own lives. The core of this service is to provide a safe transportation facility to female passengers and provide a respectable platform for their employees where they feel like they, too, can make a difference in the world. The

entire idea of Pink Taxi revolves around the concept of **empowering women**. It also incorporates the idea of women economic empowerment in some parts of the world.

Women's empowerment means women are gaining more power and control over their own lives. This entails the idea of women's continued disadvantage compared to men, which is apparent in different economic, socio-cultural and political spheres. Therefore, women's empowerment can also be seen as an important process in reaching **gender equality**.

Resources used

Pink Taxi is currently active in over 50 cities globally and it is expanding in many others. In order to operate the **service in a new city**, Pink Taxi has to **invest around 350,000 Euros**. Such amount is divided into marketing, advertising, and motivating potential drivers and clients.

With small variations between cities, Pink Taxi earns from a **commission fee** which is about **10%**, while the rest of the money goes to the driver. The income accruing to Pink Taxi will be used, at first, to stabilize the platform and to further promote the service.

The following are Pink Taxi's revenue generating models:

- **Ridesharing App:** Similar to other ridesharing services, Pink Taxi has a proactive approach in the technological advancements. Pink Taxi has developed a world-class smartphone application and enjoys a great user base with this application
- **Advertisement:** There are various Pink Taxi advertisement options, including in-door TVCs, and outdoor livery advertisement facilities. This has huge potential, as some parts of the world are facing multiple bans on the state level for the traditional below-the-line marketing channels (billboards).

Specific legislative, regulatory, and organizational environment

No specific legislation was required to deploy such service, nevertheless, targeted policies and subsidies could encourage the creation of female-only taxi services that would serve a much wider segment, including low income and female passengers that live in rural areas. Furthermore, there need to be incentives for female drivers to apply for driver jobs and the service needs to be recognised at local authorities' level in order to facilitate its promotion.

In addition, the Pink Taxi model is **extremely adaptive** to the local socioeconomic realities. It has different segments that should be present in an ideal Pink Taxi model, however, given the countries'/city's needs, laws and regulations, the service adjusts to the situation and takes into consideration all aspects that apply.

Good practices elsewhere

Since the start of Pink Ladies in London in 2005 (recognized as the first female-only taxi service), several entrepreneurs, governments and private companies have initiated women-only taxi service around the globe. All these share the same vision – to provide a safer taxi service for female passengers.



As mentioned, **Pink Ladies** (UK) was the first taxi service aimed at female passengers only and providing a vehicle with a female driver. It operates on a members' only basis to avoid sex discrimination laws. The founder started the service with 14 pink vehicles, and also the drivers were dressed in pink. The service is available only to members, the trips are pre-paid and the company donates 10% of its profits to breast cancer research.

WomenDrive (FR) is a taxi service in Paris dedicated to female passengers. It is offered only to female customers in order to ensure their safety and comfort. The service specifically targets higher-income female passengers who need transport during their errands around the city.



Laúdrive in Mexico City (Mexico) is one of the most recent additions to the market and provides a female-only service through an app. The service emerged mainly because of negative experiences female passengers had with UBER.

Laúdrive currently operates with around 1.000 drivers, and recently celebrated its

100.000th download. The service is limited to Mexico City, but it aims to expand to other cities in Mexico. The service is facing difficulties to scale-up, since it is facing other very popular app-based services such as UBER and Cabify. Still, Laúdrive relies its competitive advantage on the fact that it serves a niche, and the driver rating available in other apps does not suffice to guarantee safe rides for female passengers.

Viira Cabs in Mumbai (India) does not provide only a female-only taxi service, with female drivers, but also other services targeted at female population. The company is also a female driver bureau, a recruitment agency and a motor training school. Besides practical training on driving, their affiliates get in addition to classes on road knowledge, traffic signs, martial arts, also classes on customer relations, etiquette and grooming and are often recruited by large corporations and hotels. Viira's vision is to increase the mobility of senior citizens and young girls who will feel much safer in the hands of a trained, female driver. The company became successful due to unfortunate fact that the region has one of the highest rates of sexual harassment.

Critical analysis on business potential

The Pink Taxi group is based in London and operates internationally in collaboration with the other countries' platforms. The group's objective is to create a global brand where all Pink Taxis can come together and work as one. This would give many profitable opportunities, to be recognized as an international brand rather than a national or regional one.

Being under a **single platform** will help improving the **scalability, durability, and security** of the service. This will also enable all regions to ensure greater benefits to all its clientele and employees, and help all Pink Taxis to have a centralized marketing budget to ensure their sustainability and growth in the transportation market.

That being said, after the successful launch and execution of initial phases, Pink Taxi's primary focus would be to **expand to new territories** and **identify new tasks**. Currently, the organization is working with commercial enterprise partners to enhance the quality of the service, quantity of vehicles, and hiring of capable enterprise managers.

Other important aspects concern the adoption of **innovative technology**, reliable resources, and **autonomous vehicle**. These elements will play an integral role in achieving the company's desired results for the near future. Also, this will not only reduce the operation cost associated with the service, but automation in the system and process will also enhance client service and quality of the business.


Since so many female-passengers-only taxi services emerged around the globe, mainly in larger cities with higher rate of harassment, it is clear that there is a demand for such services. However, even with such strong potential and wide market, these services have to **face strong competition with other global players** (e.g. Uber) and no specific incentives nor policies put in place by local governments. Furthermore, in some cases female-only taxi services are facing lawsuits due to its discriminatory nature. Often, the service needs to compete with existing hailing apps that already offer features that can help reduce harassment and improve female passenger safety, for example sharing of GPS tracking and SOS buttons.

For these reasons, female-only taxis should be **backed by local governments**, who could provide support or financing for driving and other trainings (e.g. self-defence), subsidies for setting-up and operation of the service (e.g. financing of vehicles) and supporting the promotion of the service.

References

- www.pinktaxi.io
- Jerryson C. (2018). "The Pinkpaper". Pink Taxi
- www.travelandleisure.com/travel-tips/ground-transportation/female-only-taxis-paris.
- www.lefigaro.fr/societes/2017/08/28/20005-20170828ARTFIG00172-un-service-de-transport-destine-aux-femmes-pour-plus-de-securite.php?utm_campaign=Echobox&utm_medium=Social&utm_source=Twitter#link_time=1503934030.
- creativecultureint.com/pink-taxis-hit-streets-karachi/.
- www.chatelaine.com/news/woman-only-taxi-service-is-coming-to-canada/.
- www.citylab.com/transportation/2017/12/mara-castillo-mexico-uber-taxis-for-women/546830/.
- news.bbc.co.uk/2/hi/uk_news/england/merseyside/4080894.stm.
- www.bostonherald.com/2017/01/27/lawyer-this-ride-for-hire-may-prove-discriminatory/.
- www.womendrive.fr
- www.pinkladies.co.uk
- www.viiracabs.com

15. Transport a la Demanda in Catalonia

Logo	
Type of service	Demand-responsive transport scheme
Country	Spain
Address	Anselm Clavé, 69-73 2nd floor, 08402, Granollers (ES)
Website	www.amtu.cat
Email	amtu@amtu.cat

Overview

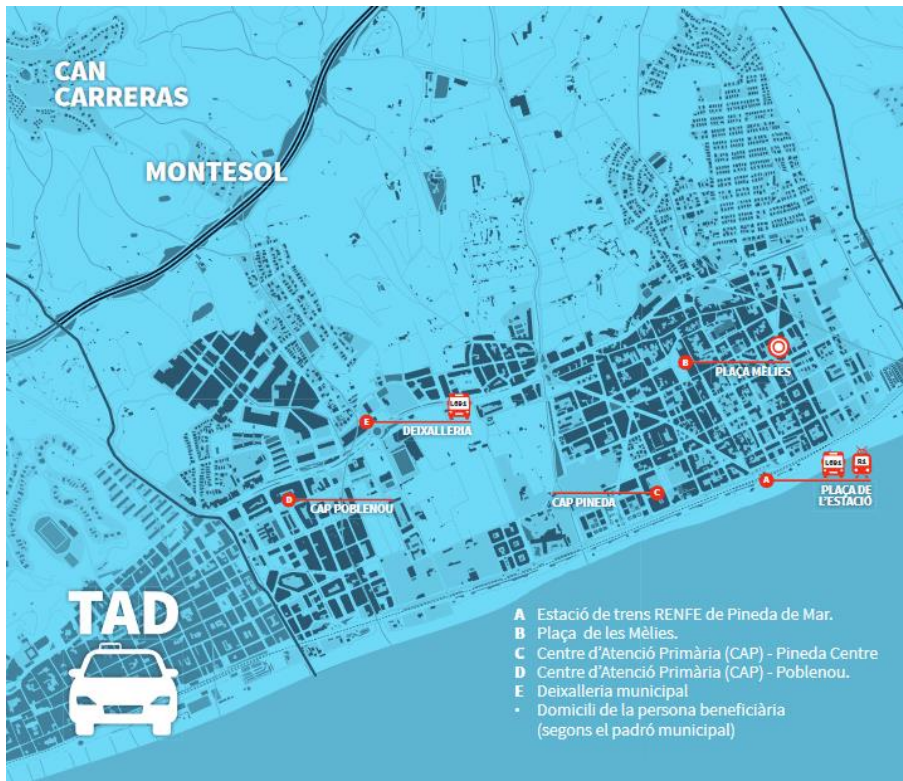
Description of the service

The Catalan strategy for improving collective road passenger transport is based on two main pillars: a new network of high level of service intercity bus links called Exprés.cat and a closer look at the mobility needs of the different counties and municipalities, including those **smaller and dispersed ones where demand-responsive transport (DRT) services can be more effectively implemented**. These services are called Transport a la Demanda or TAD and are quite differentiated, ranging from on demand bus lines to simple services operated by taxis.

The Association of Catalan Municipalities for mobility and urban transport (AMTU) is a group of freely associated local entities (98 municipalities and 3 county councils) of Catalonia that provides technical, legal and administrative support to its members for all the issues related to mobility. In 2015, AMTU launched a centralised system for the management of TAD schemes thus shaping the association also as provider of mobility services. The association currently manages TAD schemes in ten municipalities including Pineda de Mar and Saint Esteve Sesrovieres here below briefly described.

In **Pineda de Mar** (26.000 inh.), a TAD is operated with taxis for the hilly neighbourhoods of Can Carreras and Montesol that are between 5 and 7 km far from the city centre along the coast. The service is limited to the residents and runs from 7:00 to 20:00, Monday to Friday (non-public holidays). Citizens need to book the service (maximum four people) at least 24 hours in advance via the AMTU call center indicating the place and time of the pick-up as well as return information if needed. Each trip has a cost of 9,00€, of which 2,50€ are paid by the beneficiary (at the time of the service) and 6,50€ subsidized by the City Council of Pineda. Citizens over 65 years, persons with reduced mobility (33% minimum) and people with specific mobility problems (credited with a medical report and for as long as this is determined by the doctor) can make unlimited use of the service while the rest of the users (not included in any of the previous cases) can make up to six journeys during the year at discounted rates.

TAD service in Pineda de Mar



In **Saint Esteve Sesrovires**, a municipality of 7.600 inhabitants located in the northern part of the “comarca” (county) of Baix Llobregat in province of Barcelona, public transport is operated with a scheduled bus line in the morning (4 rides connecting 9 different settlements) and a TAD service operated by taxis in the afternoon (Monday to Friday). The taxi follows the same route and stops of the bus at fixed times of departures (2 rides). It only works when a user makes a previous reservation and the cost of the taxi ride is the same as the bus (2,20€ single ticket).

In summer 2018, a new TAD scheme has been launched in **Vallirana**, a mountainous municipality in Baix Llobregat, where the resident population (14.900 inh.) is dispersed in 22 different settlements. The Vallibus service is made of three bus lines and one of them is complemented by a TAD extension that makes use of an advanced IT system developed by the Catalan startup Shotl. The new Línia 2 is operated in the Selva Negra area (7.500 residents) with one bus on a fixed route/scheduled basis Monday to Friday between 7:30 and 9:00 (2 rides) plus 15:00 to 18:00 (4 rides). The on demand Shotl-powered service covers the time slots 9:00 to 15:00 (including Saturday) and 18:00 to 21:00. The TAD is operated on a dynamic routing basis from/to a set of 85 stops of which only 35 are served by the scheduled rides.

In order to make a trip request, users need to download the Shotl application, select the number of passengers for the trip (up to 5), and choose the stops of origin and destination. The service will offer an hour of collection and the journey time, which has to be confirmed by the user. The time are always approximate and they may vary a few minutes in order to be able to pick up other users. The service can also be booked in person at the municipality office or by phone and is accessible at the same rates of the regular bus lines.

A similar advanced IT system complemented by a shared management platform called "FlexiTransport Catalunya" is currently under development by AMTU as an upgrade of its TAD services.

TAD service in Vallirana

SERVEI DE TRANSPORT A DEMANDA (TAD)
El TAD funciona als barris més cèntrics (vegeu plànol) i consisteix a fer una reserva de desplaçament via tel·lèfon o APP (Shotti). En funció de les peticions s'informa l'usuari de quan tindrà el servei de bus, sempre en un punt de parada del TAD. Els desplaçaments han de ser sempre entre parades del TAD (n'hi ha 85).

Horari del servei
De dilluns a divendres de 9:15 a 14:30 h i de 18 a 20:45 h, i dissabtes de 9:15 a 14:30 h.

Sol·licitud del servei
A través de l'APP Shotti o per tel·lèfon al 679 536 699.

Demanda per l'APP Shotti
Cal descarregar l'aplicació i registrar-s'hi. Quan es vulgui reservar el servei, cal seleccionar la parada on ens ha de recollir (indicar nombre de passatgers) i la parada on volem anar.

Confirmació del servei
Es comunicaran per tel·lèfon o amb avis a l'APP (segons s'hagi fet la petició).

RELACIÓ DE PARADES DEL TAD

- 1 Institut Vall d'Arís
- 2 Major - Vall del Sol
- 3 Major - Bon Retir
- 4 Major - Ajuntament
- 5 Major - Miquel Batlle
- 6 Major - Creu Roja - Desvalleria
- 7 Major - Creu Roja - Desvalleria
- 8 Les Cases d'en Muntaner
- 9 Baix Llobregat
- 10 Can Prunera
- 11 Comtes d'Arriaga
- 12 Comtes d'Arriaga - Comtes d'Urgell
- 13 Comtes d'Arriaga - Comtes de Cardener
- 14 Comtes de Cardener - Roger de Llúria
- 15 Bonavall - Castelló
- 16 Bonavall - País Basc
- 17 Canàries - La Manxa
- 18 Meliora - Castells
- 19 Bonavall - Mallorca
- 20 Bonavall - Comtes de Pallars
- 21 Bonavall - Puig Bernat
- 22 Bonavall - Gual
- 23 Gual
- 24 Gual - Garbí
- 25 Garbí
- 26 Garbí - Migori
- 27 Migori - Xaloc
- 28 Les Cases d'en Julià
- 29 Les Cases d'en Muntaner
- 30 Major - Barquers
- 31 Major - Rambla Sobirania
- 32 Major - Lluís Companys
- 33 Major - Riera
- 34 Major - Vall del Sol
- 35 Institut Vall d'Arís

- 44 Camps, 47
- 45 Vall del Sol - Ordava
- 46 Ràdels, 43
- 47 Arbocor - Congost
- 48 Coma de Treme - Congost
- 49 Puigmal, 10
- 50 Maria Cristina, 29
- 51 Maria Cristina - Angel Guimerà
- 52 Ben de Dols - Muntanya
- 53 Maria Cristina - Muntanya
- 54 Muntanya - Ost
- 55 Muntanya - Ost
- 56 Muntanya - Ost
- 57 Arquitecte Badrich - Albert
- 58 Martí - Enric Guimerà
- 59 Enric Guimerà - Manuel de Falla
- 60 Camà, 39
- 61 Arquitecte Badrich, 41
- 62 Comerç - EBM Barri
- 63 Joan Capri - CAP Vallirana
- 64 Tardor - Cementiri
- 65 Puigmal, 10
- 66 Eduard Toldrà - Riera
- 67 Riera del Cargol - Eduard Toldrà
- 68 Plaça, 20
- 69 Plaça, 20
- 70 Venècia - Lledoner
- 71 Plaça, 20
- 72 Vallirana - Enric Bonrri
- 73 Plaça, 20
- 74 Plaça, 20
- 75 Plaça, 20
- 76 Plaça, 20
- 77 Plaça, 20
- 78 Plaça, 20
- 79 Plaça, 20
- 80 Plaça, 20
- 81 Plaça, 20
- 82 Plaça, 20
- 83 Plaça, 20
- 84 Plaça, 20
- 85 Plaça, 20

ValliBUS Connectat
HORARIS
A partir del 5 de novembre de 2018, de dilluns a dissabte tot l'any

Línia 1 LES BASSIOLES

Des	Des	Des	Des	Des	Des	Des	Des
Ins. Vall d'Arís	Les Cases	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Ins. Vall d'Arís
7:00	7:05	7:10	7:15	7:20	7:25	7:30	7:35
8:05	8:10	8:15	8:20	8:25	8:30	8:35	8:40
9:05	9:10	9:15	9:20	9:25	9:30	9:35	9:40
10:05	10:10	10:15	10:20	10:25	10:30	10:35	10:40
11:05	11:10	11:15	11:20	11:25	11:30	11:35	11:40
12:05	12:10	12:15	12:20	12:25	12:30	12:35	12:40
13:05	13:10	13:15	13:20	13:25	13:30	13:35	13:40
14:05	14:10	14:15	14:20	14:25	14:30	14:35	14:40
15:05	15:10	15:15	15:20	15:25	15:30	15:35	15:40
16:05	16:10	16:15	16:20	16:25	16:30	16:35	16:40
17:05	17:10	17:15	17:20	17:25	17:30	17:35	17:40
18:05	18:10	18:15	18:20	18:25	18:30	18:35	18:40
19:05	19:10	19:15	19:20	19:25	19:30	19:35	19:40
20:05	20:10	20:15	20:20	20:25	20:30	20:35	20:40

Línia 2 SELVA NEGRA - MAS DE LES FONTS

Des	Des	Des	Des	Des	Des	Des	Des
Ins. Vall d'Arís	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Ins. Vall d'Arís
7:25	7:30	7:35	7:40	7:45	7:50	7:55	8:00
8:05	8:10	8:15	8:20	8:25	8:30	8:35	8:40
9:05	9:10	9:15	9:20	9:25	9:30	9:35	9:40
10:05	10:10	10:15	10:20	10:25	10:30	10:35	10:40
11:05	11:10	11:15	11:20	11:25	11:30	11:35	11:40
12:05	12:10	12:15	12:20	12:25	12:30	12:35	12:40
13:05	13:10	13:15	13:20	13:25	13:30	13:35	13:40
14:05	14:10	14:15	14:20	14:25	14:30	14:35	14:40
15:05	15:10	15:15	15:20	15:25	15:30	15:35	15:40
16:05	16:10	16:15	16:20	16:25	16:30	16:35	16:40
17:05	17:10	17:15	17:20	17:25	17:30	17:35	17:40
18:05	18:10	18:15	18:20	18:25	18:30	18:35	18:40
19:05	19:10	19:15	19:20	19:25	19:30	19:35	19:40
20:05	20:10	20:15	20:20	20:25	20:30	20:35	20:40

Servei de Transport a Demanda - TAD
De 9:15 a 14:30 de dilluns a dissabte

Des	Des	Des	Des	Des	Des	Des	Des
Ins. Vall d'Arís	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Ins. Vall d'Arís
9:15	9:20	9:25	9:30	9:35	9:40	9:45	9:50
10:15	10:20	10:25	10:30	10:35	10:40	10:45	10:50
11:15	11:20	11:25	11:30	11:35	11:40	11:45	11:50
12:15	12:20	12:25	12:30	12:35	12:40	12:45	12:50
13:15	13:20	13:25	13:30	13:35	13:40	13:45	13:50
14:15	14:20	14:25	14:30	14:35	14:40	14:45	14:50
15:15	15:20	15:25	15:30	15:35	15:40	15:45	15:50
16:15	16:20	16:25	16:30	16:35	16:40	16:45	16:50
17:15	17:20	17:25	17:30	17:35	17:40	17:45	17:50
18:15	18:20	18:25	18:30	18:35	18:40	18:45	18:50
19:15	19:20	19:25	19:30	19:35	19:40	19:45	19:50
20:15	20:20	20:25	20:30	20:35	20:40	20:45	20:50

Servei de Transport a Demanda - TAD
De 18:00 a 20:45 de dilluns a divendres

Des	Des	Des	Des	Des	Des	Des	Des
Ins. Vall d'Arís	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Ins. Vall d'Arís
18:15	18:20	18:25	18:30	18:35	18:40	18:45	18:50
19:15	19:20	19:25	19:30	19:35	19:40	19:45	19:50
20:15	20:20	20:25	20:30	20:35	20:40	20:45	20:50

Línia 3 EL LLEDONER

Des	Des	Des	Des	Des	Des	Des	Des
Ins. Vall d'Arís	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Plaça de les Fonts	Ins. Vall d'Arís
9:15	9:20	9:25	9:30	9:35	9:40	9:45	9:50
10:15	10:20	10:25	10:30	10:35	10:40	10:45	10:50
11:15	11:20	11:25	11:30	11:35	11:40	11:45	11:50
12:15	12:20	12:25	12:30	12:35	12:40	12:45	12:50
13:15	13:20	13:25	13:30	13:35	13:40	13:45	13:50
14:15	14:20	14:25	14:30	14:35	14:40	14:45	14:50
15:15	15:20	15:25	15:30	15:35	15:40	15:45	15:50
16:15	16:20	16:25	16:30	16:35	16:40	16:45	16:50
17:15	17:20	17:25	17:30	17:35	17:40	17:45	17:50
18:15	18:20	18:25	18:30	18:35	18:40	18:45	18:50
19:15	19:20	19:25	19:30	19:35	19:40	19:45	19:50
20:15	20:20	20:25	20:30	20:35	20:40	20:45	20:50

Can Batlle - La Solana - Vallirana Parc - Mas de les Fonts - El Mirador - Vall del Sol - Selva Negra - Vallirana Parc - Mas de les Fonts - Can Batlle - La Solana - La Llibra Casanova - Els Pins

SERVEI DE TRANSPORT A DEMANDA (TAD)
De 9:15 a 14:30 de dilluns a dissabte
De 18:00 a 20:45 de dilluns a divendres

El compliment d'aquests horaris està subjecte a les incidències i els canvis de la via pública. Recomanem ser a la parada 5 minuts abans de l'hora indicada.

Són vàlids tots els títols de transport integrats de l'ATM i els dos títols propis de Vallirana (V1 i V10 viatges per jubilats).

Més informació a: www.solerisauet.com

ValliBUS Connectat
AMPLIACIÓ DEL SERVEI
A partir del 5 de novembre de 2018

MÉS EXPEDICIIONS
SERVEI DE DILLUNS A DISSABTE
TOT L'ANY
AMPLIACIÓ HORÀRIA
DE 7 A 21 H
36 PARADES NOVES
NOU SERVEI DE TRANSPORT
A DEMANDA AMB 85 PARADES

PARADES BUS INTERURBÀ
L50 L57 G77 G87

EL LLEDONER
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2 Major - Vall del Sol
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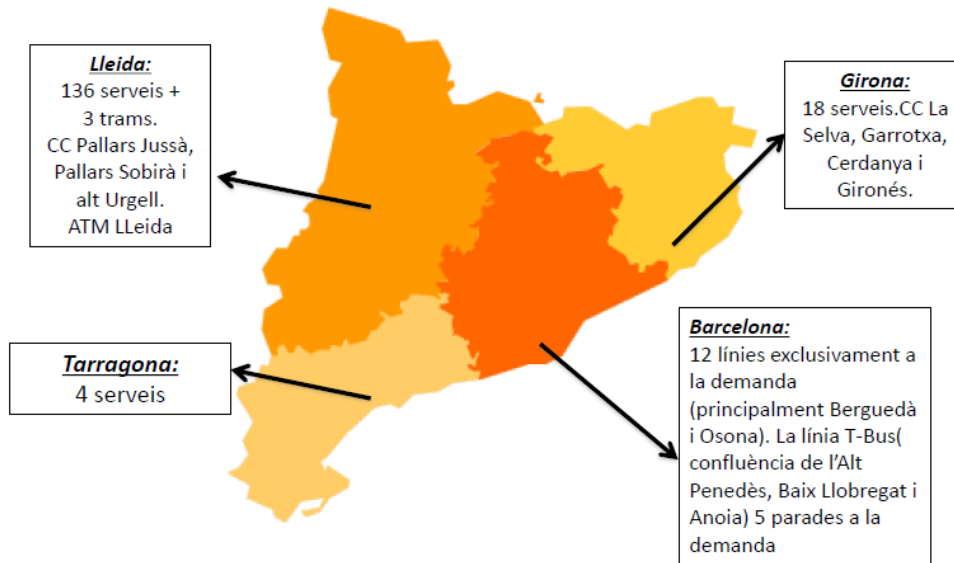
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TAD service in Catalonia (2015)



What facilitates the running of the service

The main three factors facilitating the introduction of TAD services in Catalonia are:

- A favourable regulatory framework with a clear regional transport strategy (see section 2.6);
- The presence of well-established and simple organisational schemes (e.g. the associated platform of AMTU) and, more recently, the introduction of innovative IT systems (i.e. Shotl, FlexiTransport Catalunya);
- The diversification of TAD services in operation to meet the real needs and resources of local entities and communities.

As highlighted in a recent analysis on framework conditions and barriers for the implementation of flexible transport services in Catalonia carried out for the Interreg project LAST MILE (Generalitat de Catalunya 2017), one main organisational barrier will be the integration of certain TAD services (e.g. basic ones operated by taxi) with the public transport fare system, that in the near future will cover the whole region. Allowing the use of integrated transports tickets may be difficult because of the need of validating machines on board each taxi or van.

In general, bus operators are not interested in transforming conventional bus lines into TAD, because of the difficulties in managing these type of services (i.e. need of a call center and dynamic scheduling) and especially for the uncertainty of the revenues. Similarly, taxi companies showed opposition to market-based transport services like Uber or similar. A challenge will be to develop a wider scheme and strategy where taxi drivers and bus operators are part of the evolution so they don't perceive flexible transport services as a threat.

Performance on transport poverty reduction

TAD services demonstrated to be a viable solution for introducing or extending public transport coverage as well as reliability and attractiveness of the service in rural and peri-urban areas, including very dispersed areas or isolated neighbourhoods of compact towns.

Usually Catalan TAD schemes includes special rates and are specifically designed for elderly citizens and people with permanent or temporary reduced mobility.

Resources used

AMTU elaborated several feasibility studies for the introduction and management of TAD services. A first, technical, legal and financial study was carried out in 2015 covering the mobility needs of eight associated municipalities for the implementation of the shared TAD central office and call centre capable of managing a maximum of 50 vehicles. The study estimated a potential demand of around 200.000 passengers/year and 80.000 journeys resulting in 480.000 km driven per year.

It also estimated 225.000€ for the investments in the call-centre equipment and software (including vehicles' on-board units, the software licence and installation service) plus around 140.000€/year for its functioning (3 full time operators and 1 part-time coordinator of the system). The running cost of a TAD service operated with taxi or van ranges between 1,15€ to 1,50€ per km (AMTU, Gencat).

For its new FlexiTransport concept, AMTU is evaluating a pay per service or pay per vehicle scheme: this could be managed paying a fee of 300€ per month and up to 1€ per validation depending on service typology and municipality.

Specific legislative, regulatory, and organizational environment

The "Mobility Act" of the Autonomous Community of Catalonia (Ley 9/2003), as integrated by the regional law on public transport funding (Ley 21/2015), provides the definition of mobility as service of general interest of universal nature (art. 3 bis):

The set of activities of the integrated urban and interurban public transport system of Catalonia is considered a service of general interest of a universal nature, as a means to enable equal opportunities in the exercise of citizenship right and achieve the objectives of social and territorial cohesion, with the correlative obligation of the competent public administrations in this matter to guarantee the access of all the people to this service, in all the territory and in conditions of equality and equity. The efficient public transport of passengers, accessible throughout the territory and economically available, has an integrated social pricing system that is specified and developed within a stable financing model.

The normative references to equality and equity principles, the obligation to guarantee full accessibility and need to develop and operate financially viable public transport solutions highly favoured the introduction of DRT services in Catalonia.

The notion of TAD was first introduced in the regional legislation in 1987 (Llei12/1987): these services can be embedded within a public transport concession (as part of the regular service), authorised to private passenger transport companies (serveis discrecionals) or operated by taxi. Another norm (Decret 319/1990) provides indications on the characteristics of public transport plans as well as prescription for their elaboration that are based on rationalisation principles (best use of available resources). Also, the Mobility Act (Ley 9/2003) has indicated TAD as suitable solution for low density and industrial areas.

Under the national law “LRSAL” (Llei 27/2013) the mandatory introduction of urban public transport in cities of at least 50.000 inhabitants has been introduced. In Catalonia this obligation includes the capitals of the “comarcas” (a territorial entity similar to a county).

The 2020 Passenger Transport Plan of Catalonia defined a proper strategy for the services to be implemented in the comarcas: neighbouring county capitals to have public transport connections with a service frequency of at least 1 ride per hour and at high commercial speed (Exprés.cat); cities over 5.000 inh to have at least 1 public transport ride (return trip) to and from their county capital and Barcelona on working days; cities with less than 5.000 inh similarly to have at least 1 daily connection to the county capital either operated by regular public transport or TAD.

Good practices elsewhere

In 2015, AMTU updated a previous study on publicly subsidised DRTs in Europe with the aim of evaluating the viability of implementing public transport on demand and converting regular services into TAD. A total of 33 cases from other EU countries were analysed in detail such as AST, Connect2, Drinbus, Evreux, Publicar, Taxi-Tub, Tele-bus, LandaBus, MobiBus, Transdev, Uber, etc., together with some Catalan and Spanish examples (e.g. Castilla and Leon region).

The study was presented in a technical workshop organised in collaboration with the CIVITAS Initiative where representatives of the PT operators and municipalities of Bologna, Genova and Parma (Italy) provided recommendations on how to develop and manage DRT services based on their experiences.

Critical analysis on business potential

The focus of current TAD schemes in Catalonia is on municipalities and areas with no public transport provision or low demand. The main aim of the Catalan strategy is to optimise the use of resources in local public transport and to increase quality, level of service and territorial extension of PT provision. Therefore, DRTs are not seen as a way for reducing the amount of public funding and investments and, at all institutional levels (i.e. regional, provincial and municipal), there are further developments ongoing in order to take advantage of the potential of new information and communication and knowledge technologies.

As indicated above, AMTU is developing an upgrade of its current shared TAD scheme that is now mostly based on a central call centre and the preliminary definition of certain service characteristics (rates, routes, type of vehicles to be used). The idea is to design and launch a new FlexiTransport Catalunya concept making use of an advanced optimisation platform integrating all forms of available public transport and capable of managing trip request in real time, apply dynamic routing and e-payment.

This scheme is trying to replicate the system developed by FlexDanmark for the management of Flextrafik in Denmark (see the linked case study in this collection).

Similarly, to the Danish example, the Catalan scheme should try to integrate other transport segments into TAD like special needs transport (i.e. subsidised mobility services to hospitals and healthcare centres operated with vehicles accessible also to people on a wheelchair) and of course school transport (including disabled schoolchildren).

Also, market-based services like ride hailing, carpooling and car sharing services could further extend the offer.

The possibility to integrate and optimize travel needs and requests from other public authorities (e.g. Healthcare, Schools) could easily follow the Danish approach: in this sense, Catalonia seems to have the best preconditions for transferability but formal agreements and an extension of the competences of provincial mobility agencies should be secured.


In order to make the current Catalan TAD system into a more advanced and comprehensive MaaS platform, further developments should be made in the design of an open IT system. It means that platforms and solutions implemented by third party entities (e.g. PT operators, associations of municipalities like AMTU or innovative startups like Shotl) can be easily integrated in the regional main interface.

A good starting point is the webportal (<https://mou-te.gencat.cat>) that currently provides only info mobility services on the integrated public transport system in Catalonia.

References

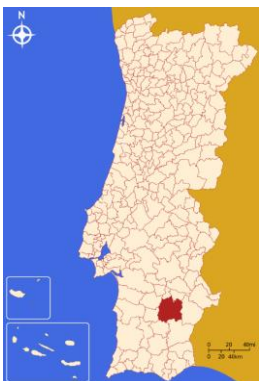
- www.amtu.cat
- Interreg Europe (2017). "Analysis of national/regional framework conditions and barriers of flexible transport"

16. Taxi Colectivos Beja

	
Type of service	Shared taxi
Country	Portugal
Address	Praça da República, 7800 - 427 Beja (PT)
Website	http://www.cm-beja.pt
Email	geral@cm-beja.pt

Overview

Description of the service



Beja is a medium-size city that lies in the heart of the less densely populated Portuguese district, Alentejo. The whole Municipality has a population of 35,734 inhabitants. This municipality has initiated the first ever **collective taxis service** experience carried out in Portugal. The objective was to target people living in the rural villages around the city of Beja that had poor connections to the main city, especially during weekends, when the public transport service lacks.

The project was first rolled out in July 2000, during a pilot period of six months, offering six different routes during weekends only. After the first tests held during this period, the municipality has decided to keep only **four routes, three of which are fixed, and one works on-demand**, upon request.

Some of the collective taxi service characteristics that are still in force can be summarized as:

- **picking up and hailing the passengers at the bus stops (preferably);**
- on Sunday afternoon, all routes **pass through the regional hospital**, to let people visit their relatives and friends;
- **the ticket** can either be purchased in advance or directly to the driver of the taxi;
- In case the taxi reaches maximum occupancy (all taxis are 5-seats) and cannot accommodate any other passenger, the taxi driver will alert the central by radio or by phone to **ask for another taxi**;
- **mobility impaired citizens** might receive a different assistance: provided that their medical condition allows them to use the taxis, the taxi driver can guarantee their transport from their household to the exact place where they wish to go, if this is within a reasonable distance;

- for the **regular transport services**, there is no need make a prior registration. This is only compulsory for the demand-responsive route.

In terms of service offer, three routes work on a fixed schedule. This means that most of the services running in Beja are regular and operate on a fixed structure, even when there is no demand. Hence, with the exception of route 4 which runs only if there is at least one citizen wishing to take the taxi, all other services do not require any previous request.

Operationally-wise, taxi drivers are allocated in **a schedule roster** and there is always a certain number of taxis that are parked waiting in case there is an extraordinary need of additional vehicles. According to the testimonial of the transport expert from the Municipality of Beja, these **taxi drivers do not receive any extra money for being on-hold**, waiting for a service related with the collective taxis instead of being working independently. This might represent some opportunity costs for the taxi drivers. To benchmark the fares with the regular public transport services fare menu, one can point out that the longest distance by taxi will cost to a citizen from Beja taking collective taxis 3.25€ whilst if the service was provided by regular public transport it would cost 4.35€. So there is something as **25% savings** for the user. Below is reported the total length of the four routes coupled with information about rough km travelled, which should be regarded as a strong proxy indicator of the overall operational costs.

Main operational indicators of service supply

Routes	Km per round-trip	Round-trips per weekend	Km per weekend*	Km per year	Cost**
Route 1	52 Km	4	208	10,400	
Route 2	50 km	4	200	10,000	
Route 3	42 km	3	126	6,300	
Route 4	28 km	1	28	1,400	
Total				28,100	12,645€

*One considers that route number 4 receives one request per weekend; the number of km per weekend were multiplied by 50 to cover some weekends that match holidays. The overall cost is consistent with the one that could be estimated from the figures provided by our contact person in the Municipality of Beja.

** Taxi drivers are paid 0.45€/km

Usage of the service

According to the contact person from the Municipality of Beja, the collective Taxis transport about **1,000 passengers per year**. In terms of social layers that use the service, research has allowed to understand that the service is less used by the younger generation. People aged between 16-24 years old account for 11%, aged between 25-39 years old account for 22%, older than 40 years old account to 2/3 of the overall demand (67%).

In terms of the most common purposes for trips, besides going to work which is the main reason for using the Taxis, it was found that collective Taxi users also use this service to visit the hospital and the city market on weekends. The service is mostly used by people that are either retired or that work at home as domestic.

Surveys conducted to the users have shown that the overwhelming majority of users consider the paths as adequate (93%) and that 70% consider the schedules adequate.

What facilitates the running of the service

Strong interinstitutional commitment was surely the biggest driver for this service during its first implementation period. As explained before, the collective Taxis arose from a wide understanding between the local PT company (Rodoviária), the municipality which steered all the negotiation process, the national authority for transport issues (IMT) and 17 private Taxi owners, with whom an individual contract was established.

Other factors that explain why the service has been operating for such a long period of time rely in the fact that they are implemented in a vast territory with small and remote areas, which would be much less efficiently to supply with standard-sized buses.

Arguably, the service has been experiencing some barriers that pose new challenges for the steering team of the Municipality and for the PT Operator alike (because it also subsidizes the service). The most important challenge relates with the **high number of trips performed with zero passengers onboard**. There is some **rigidness in the service** that derive from the historical agreement with the Taxi operators. They are expecting a minimum compensation for having lost the services they use to have in the city centre, when the PT system was first created.

Another barrier mentioned by the contact person in Beja relates with some **delays or not-shows at the designated bus stop**. This is something that ICT platforms could help easing.

Performance on transport poverty reduction

Together with the local parishes, the Municipality of Beja has started to conduct a comprehensive diagnostic of the system, which started by identifying the areas that are more in need of public transport services. **There are still many villages where this transport is not provided on holidays and some that have not yet any service on weekends**.

Besides **eliminating trips with zero occupancy**, the objective of the Municipality is to **expand the service** in order to cover the whole territory and to provide this service during weekdays for mobility-impaired citizens. There is, however, **no clear evidences that can help us determine how many of these persons are currently transported**. The only figures that are available in the actual scheme show that the collective Taxis are being used mostly by people aged between 40 and 65 years old.

Resources used

The collective Taxi service is provided by the Taxi drivers themselves, using their own means (the regular vehicles they use). Payment for their services is assumed by the Municipality of Beja, coupled with the local PT Operator, "Rodoviária do Alentejo". The Municipality and the PT Operator defined, since the very beginning of the project, that they would pay for the Taxis **less 20% per km travelled than what they would earn in a regular service**. This was the proposal that the Taxis have agreed on. In addition to this, some details of the contract are shown below:

- The contract establishes a **fixed payment of 0.45€/km** paid by the Municipality and the PT Operator to the Taxis.
- **The Taxi driver collects the money from the ticket and delivers it to the PT company** which manages all the earnings and costs every month.
- **The deficit of the service is ought to be assumed by both the Municipality of Beja and by the PT Operator in different shares, 60% and 40%, respectively.**

In terms of balance between costs and revenues of the overall service, it has been found that there are not any other revenue streams besides the farebox, which means that **the service is registering a deficit around 800-900€/month**. Summing it all up, the service is experiencing, on average, a **financial loss of about 10.20€ per passenger transported**.

Main indicators of service usage

Category	Indicator	2017
Demand	Number of passengers	1,000
Revenues	Revenues	2,160€
	Revenues per passenger transported	2.16€
Costs	Costs	12,600€
	Costs per passenger transported	12,60€
Financial	Result of operation*	-10,200€
	Result of operation per passenger transported	-10.20€

* Calculated using 850€ as the average net loss per month

Considering that there are no passengers using the service for free, and that they pay the price of a regular bus service, the overall assessment is that **the service does not seem to be providing a reasonable cost per passenger transported**.

Specific legislative, regulatory, and organizational environment

The absence of a legal framework for flexible transport systems has complicated the early implementation and operation of the collective Taxi scheme. The wide interinstitutional agreement established for setting up the collective Taxi scheme required the development of specific legislation, because the regulation for flexible public transport schemes was only published very recently in 2016. As a result of much lobby from the Municipality of Beja, a new law was published in 1998.

The Decree Law 251/98 transfers the relevant powers to regulate the **access to market** to the municipalities, including the market organization and licensing of vehicles. Competencies over Taxis are thus divided between national and local authorities and the later ones have the responsibility to act as organising authorities, establishing, within their territorial jurisdictions, quotas for Taxi services, parking regimes, special regimes (such as those for people with reduced mobility), and the setting of the enforcement bodies.

Good practices elsewhere

Beja was a pioneer in flexible transportation, but there are quite a few examples in Portugal that have been developed on their footsteps. One of the most well-structured is in **Médio-Tejo**, in the geographical centre of the country. As many others, this started in 2013 as a pilot initiative in one Municipality and gradually extended to the whole "Médio Tejo" region between 2014 and 2017.

The service in Médio Tejo is based on a fixed schedule, which can potentially run every day, if activated by a trip reservation over the phone. It covers nowadays a total of 13 municipalities, that have 247 thousand inhabitants spread through a territory of 3.334 km² (74 inh/km²). Some of these municipalities have 30% of the residents living in villages as small as less 40 inhabitants-large and where more than a fourth of the population is over 75 years old.

There is informatics equipment that registers the requests and rosters of trips are automatically generated on a daily basis. The cost of the informatics equipment, as well as the staff that works in the planning department are all covered by the association of municipalities of the region which are nowadays the legal transport authority. The overall investment cost of this equipment was around 120.000€, 85% of which was cofounded by the national operational program. Running costs account for about 12.000€/year and are embedded in the overall operational costs of the system.

There are currently contracts with 30 different Taxi operators. Typical contracts with Taxi operators include a **fixed monthly payment of 50€ per vehicle and a flexible payment assigned to the number of concrete km performed, normally around 0,80€/km**. Therefore, operational costs per vehicle are, in theory, much more expensive than in Beja, where Taxi drivers are not entitled to receive any fixed earning and receive only 0,45€/km. However, it is worth underlying that unlike what happens in Beja, the flexible payment in Médio Tejo is only due when there is a transportation request from a passenger.

Ticket costs are similar to the ones currently offered in Beja, which means that they are quite below the prices usually paid in interurban buses in Portugal. Nonetheless, it is important to mention that, unlike in Beja, where there are not tickets for regular users, in Médio Tejo citizens can pay a pack of 10 tickets with a 30% discount.

According to customer satisfaction surveys, punctuality of the buses is regarded in Médio Tejo as the component of the service with which the clients are more satisfied with (97% saying they are very satisfied with it), whereas the schedules are the weakest point.

Comparing the different clustering of public transport users, it is striking to realize that the service in Médio Tejo almost does not transport persons under 25 years old. In fact, 70% of the total number of users in Médio Tejo are elderly people, which is interesting to highlight in the sense that 34% of people use the service on a daily basis, so they ought to have a high number of mobility needs (50% of journeys are related to health issues).

In conclusion, the main differences between Beja and Médio Tejo are the following:

- The service in Beja is provided only on weekends, whilst in Médio Tejo the service is operational throughout the week;
- In Médio Tejo there is an informatic system to manage demand and to generate the services. This software is fit to be upscaled and transferred to other EU sites;
- The other critical difference concerns the regularity of the service in Beja, where the Taxi performs a service even if he doesn't have any demand, raising the average km per passenger transported to 28,1, whilst in Médio Tejo, in a similar territory (just slightly more populated), this ratio is almost four times lower (7,9).
- Also, the public of both services are quite different, and this is reflected in the average age of the persons who use it. In Beja the service is provided to a more active population, which needs the service to go to work on weekends (even if there are not tickets for regular users, which can mean that the service is only used in case of occasional need) whereas in Médio Tejo the service is clearly oriented to a more elderly population, which take the Taxis to go to medical appointments.

Comparison of Beja and Médio Tejo collective Taxi case studies

	Beja	Médio Tejo
Inh. Km2	32.4	74
Pax	1,000	8,400
Km	28,100	66,000
Km/pax	28.1	7.9
Cost per passenger	12.60€	5.21€
Total costs	12,600€	43,800€*
% of costs covered by fares	17%	28%
% of people under 24 years old	11%	1%
% of people above 64 years old	22%	70%

* 12,000€ of these overall costs account to the annual fixed payment related with the ITS that supports the demand-responsive system

Critical analysis on business potential

The local partners (Municipality and PT Operator) developed a model based on a set of Taxis which would provide a mix of regular and demand-responsive journeys, where the first is predominant. Deploying such service with a regular PT Operator would not be profitable and the solution found seems to serve the population, even if the operation costs are still high and could be better optimized. One could question the business rationale behind the offer of regular Taxi services. From a technical viewpoint, there is not enough demand that could justify it. Whilst political objectives play a major part in the decision process, there is growing awareness that costs need to be controlled and the use of resources should be fine-tuned. From a strictly business perspective, one suggests that **the model from Beja should be revised and framed under the national law enabling the functioning of flexible public transport systems as a part of the public transport system** and also in the frame of the new contracts for public transport, transposed from EC Regulation No. 1370/2007. Besides this relevant transport policy update, municipalities should proceed with a comprehensive exam, evaluate passenger transport needs more frequently and adapt the service accordingly. This however requires motivation and political will from the municipalities leaders.

For example, even **if they are called collective Taxis, there are no incentives for more than one person to share the same Taxi, which could be achieved by offering more favourable fares if the vehicle is used by more than one person.**

The current project of Beja also fails for **not having a technological backend solution** to help managing the service. Full integration of advanced technologies and modern trends (e-mobility, ITS, comprehensive public transport system, mobile applications, etc.) could help in providing information and attracting more passengers. This might bring economic and social benefits for local communities.

It would be equally interesting to explore **other revenue streams** like publicity and especially delivery of goods with the Taxis.

A Taxi sharing scheme is fairly useful in sparsely populated territories, where demand is low. Beja could work on the building blocks of Médio Tejo, who offers a different business model to their operators, including a low fixed cost and an increased flexible cost per journey.

Besides this flexibility, it would be important to integrate an affordable technology backend structure, either to manage the rosters of services but also to provide a good communication channel to the citizens, which could ultimately track the Taxi (this would reduce the incidence of no-shows and complaints about delays of the Taxi driver). A collective Taxi scheme, to effectively become collective, should maximize existing capacity. To leverage a collective use of these vehicles and incentive people to actually share the Taxi ride with others, a new flexible fare could be introduced, lowering the costs of shared trips.

In addition to the above, it would be important to explore the possibility of having additional revenues, either from publicity or from the potential that carrying goods in the Taxis could represent (for example, mail).

The new EC regulation for public transport creates a good background to leverage the creation of creative and flexible public transport models in areas where current service is poorly organized and lack demand. Also, as the population living in rural areas becomes more acquainted with digital tools, informatics equipment's can become an effective tool not only to make projects more cost-effective but also to communicate with the public. Currently, in Beja, neither the PT Operator, nor the Municipality, and not even the passengers, have an idea about where the Taxis are circulating at each moment. This sort of back office technology could easily be upscaled from Médio Tejo, for example.

The foreseen roadmap for an updated and improved version of the collective Taxis scheme could be implemented as follows:


- Diagnostic of demand/offer by route and time-window, to have a better grasp of unmet mobility needs;
- Introduction of a generalized "on demand rule" to eliminate the number of trips performed with empty capacity;
- Financial and technical assessment of the deployment of a technological system to optimize routes, manage booking requests and to communicate with the citizens;
- Negotiation of new (competitive) contracts with Taxis, in order to introduce a low fixed cost and higher flexible costs;
- Communication campaign to incentive the use of Taxis and offer of package of tickets with discount for those who purchase in advance a booklet of tickets and for those who actually share the Taxi with other riders;
- Explore other revenue streams, such as publicity in the Taxis or delivery of goods, to reduce pressure from the public budget and to make the service more resilient to the low number of passengers transported;
- Development of a joint procurement to renew the Taxi fleet with electric vehicles.

References

- www.interreg4cflipper.eu
- www.cm-beja.pt/homepage.do2
- www.tr-eventos.com/transporteflexivel/multimedia
- European Commission (2016). "Study on passenger transport by taxi, hire car with driver and ridesharing in the EU".
- www.astrid-online.it/static/upload/2016/2016-09-26-country-reports.pdf

DRAFT

17. Uber

	
Type of service	Ride-hailing service
Country	USA (born), Worldwide
Address	San Francisco (California) - global, Amsterdam (NL) - Europe
Website	www.uber.com
Email	N/A

Overview

Description of the service

Uber is a platform that matches passengers with a need of transport with drivers who can provide the service with a vehicle. Besides its basic functionality of a match-making platform, it is also particular in the way it started – instead of limiting the service supply to professional drivers, **it enabled anyone with a vehicle (car) to offer through Uber platform to transport the passengers demanding the service.**

The service operates only in selected cities, and mainly in urban and peri-urban areas. It is **not particularly targeting vulnerable user groups**, although with competitive pricing and convenient use, it can bring mobility closer to those with lower income, living in rural areas, or with difficulties communicating, since the service is available only through an App (provided in several languages). However, since the service is available only through an App, this can also pose a barrier for users with lower digital literacy (e.g. elderly people), which is also reflected in the majority of its users being from the younger population. Nevertheless, in certain areas (where not regulated), Uber acts as a **marketplace for non-professional drivers** to make some earnings by providing transport service with their own vehicle, without owning a licence.

The service is very similar to a taxi service and is paid based on distance and time, nevertheless, there are two major differences: **the cost is estimated beforehand**, and the final price (for the customer) and payment for the provided driving service depends on current supply and demand (**dynamic pricing**). **Dynamic pricing can also act as a barrier in rural areas and at night**, since low interest in providing the transport service results in the platform incentivising potential drivers by raising the price for the passengers.

Uber was founded in 2009 and the service is now launched and runs only in areas with enough demand and supply and where regulatory conditions allow it. Initially, the service was setup with **strong incentives** for both drivers and passengers in order to create critical number of supply and demand. In order to setup a two-sided market, Uber had to recruit and incentivise enough drivers to provide a certain level of service in the selected area

and, at the same time, provide free or very affordable rates to potential passengers in order to stimulate the use and promotion of the service.

Usage of the service

As with the majority of smartphone Apps, to start using the service, the passenger only needs to download the **Uber App** (free and available for all major smartphones), create a user account and add a credit card.

The service is used for **immediate hailing of a vehicle**, or scheduled pick-up. Used mainly in urban areas, but also for trips to nearby airports. Compared to a classical taxi service, the vehicle cannot be hailed on the street, but only using an App, setting the pick-up location and optionally also the destination. Upon confirmation of the available driver, the app shows to the waiting passenger the current status of the booking, current location of the vehicle and estimated time of arrival. The portfolio of available features and services is expanding, potentially allowing Uber to compete also with other means of transportation.

Uber is available in several cities globally, but with a restricted offer and even banned in certain cities. As of the end of November 2018, the service is available in more than 600 cities, in 65 countries. Each day, more than 15 million trips are completed, and so far, more than 5 billion trips have been completed worldwide. In total, there are 3 million drivers actively providing transport services for Uber's 75 million passengers. In the USA alone, Uber's market share in the ride-hailing market is estimated at between 69% and 74%.

What facilitates the running of the service

Uber functions as a **marketplace platform with no asset's ownership**, matching demand with supply. The service matches travel demands of passengers with the drivers that are able to provide the requested service. As initially deployed, Uber was based on a pool of drivers with own vehicles, who registered to provide their service during their free time. As such, it enabled private vehicle owners to make some earnings besides their regular job, for example in the evenings or on weekends, with full flexibility for the owners to decide when they want to provide the service, and with the ability to accept only the service requests that suit them.

Dynamic (and surge) pricing, based on current demand and available supply, enables the platform to incentivise both sides of the platform. In cases of high demand, the prices are increased, more so if there is not enough supply at the given moment. At the same time, higher earnings are offered to drivers that are willing to provide their service in times of high demand and low supply. Such mechanism – surge pricing - helps to ensure the balance of demand and supply and therefore more reliable service functioning.

The service is used through an App available globally and offers a coherent user experience. The user needs to create a single account, provide a credit card and is immediately able to request a ride. There is **no need to call and wait to speak to an operator**, and based on the set destination, the cost of the trip is estimated. Once the ride request is accepted by an available driver, the passenger is provided with an estimated arrival time and he can also follow the vehicle on a map. Upon completion, the user simply leaves the vehicle and the payment is processed using the provided credit card. Furthermore, Uber leverages from the data on performed trips. Its large user base (both passengers and drivers) allows for big data analysis and prediction. **Dynamic pricing is therefore enhanced with historical data and demand forecast. In addition, driving data can feed route planning and travel time estimation services.**

Another important feature is **driver and passenger rating**, which enables a kind of self-censorship. After the ride, both passenger and driver are able to rate the experience with a 1 – 5 star rating system and report any inconveniences. Rating not only gives an idea of the customer or driver, but itself helps to ensure high service quality, since both are encouraged to keep their ratings high in order to stay on the market and be able to consume or provide the service.

Uber is continuously **adding functionalities**, for example sharing the ride cost, tipping the driver, emergency call, etc.

But Uber did not start only as an alternative to the traditional taxi service, offering vehicle hailing through an App but it provided vehicle owners an opportunity to earn some money on the side. Several vehicle owners immediately jumped on this opportunity, which was initially not regarded as a business activity and therefore it **did not require them acquiring any licences nor running a dedicated legal entity**.

Furthermore, Uber initially **heavily subsidised both sides of the market**, proving ride service at a very low cost compared to the traditional taxi and decent earnings for the drivers. As a front-runner, Uber immediately took advantage of its first-mover position and spread their service offering to hundreds of cities worldwide, not leaving room for other players to enter. At the same time, traditional taxi providers had no means to react to Uber's disruptive offering and often referred to aggressive actions against it. Only recently, the taxi industry managed to identify the legal means to face Uber's status and weaken its disruptive behaviour enabled by lack of regulation.

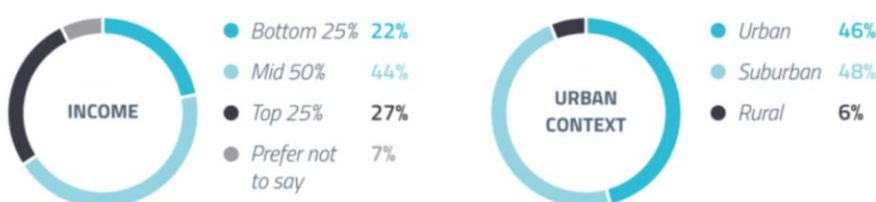
As any platform starting its business, Uber was faced with lack of trust, lack of drivers and passengers, high investment/cost of subsidising and technological hiccups.

In several cities, it is still facing **liability and regulatory issues** once it substantially conquers certain markets, with strong opposition of the competing services (mainly incumbent taxi operators).

Performance on transport poverty reduction

Uber does not target specific vulnerable users, but since it provides an alternative to the traditional taxi service, at often lower prices, and an alternative to public transport, it has the potential to help alleviate transport poverty. While efficiently responding to transport demand, also in rural areas, with its **dynamic pricing can often result in a cost barrier for low-income passengers**. This is further manifested in rural areas, in peak hours and at night.

Uber users demographics (USA).



Source: <https://blog.globalwebindex.com/chart-of-the-day/uber-demographics/>

Despite being a digital-only service, it is still very attractive and convenient also for older users, for example with special arrangements between Uber and healthcare services. In addition, **new services have emerged that provide alternative, phone call-based interfaces**

to services such as Uber and Lyft (e.g. GoGoGrandparent <https://gogograndparent.com/>). Furthermore, Uber started providing a **special service for elderly passengers in rural areas in Japan**. Due to the fact that Japan has one of the world's fastest ageing populations, with countless areas populated by shrinking ageing communities off the public transport grid, it is an interesting and profitable market for Uber. The service was launched with the support of local governments, and it is available to these user groups through a phone call.

Uber started operating with non-licensed drivers, who did not go through a thorough check on their driving professionalism and experience, criminal record, sometimes resulting in major offences mainly against vulnerable users (e.g. women). Following other controversies with immigrants, especially in the USA, **Uber promised more immigrant friendly actions**. In its initial form, it provided an **opportunity to low-income population that owned a vehicle to make some earnings, which were not taxed**. This opportunity, while still requiring a newer vehicle, it did not require cumbersome formal procedures to start earning 'quick cash', and it therefore became very popular among immigrants and even older people.

Nevertheless, Uber's model often led to **employment rights abuses**, with drivers being pushed to long working hours, without having medical or social insurance, sick leave or any other benefits and taking debts in order to **buy newer vehicles, required by Uber's conditions**. Today, average Uber driver income is \$364/month and drivers are most likely to be aged from 30-49, and to be non-white. Interestingly, **female Uber drivers earned on average 7% less than males**.

Uber has in some cases even the ambition to replace the less-efficient public transport, although research shows that it is often just providing an extension of public transport, or the last mile, although its effect is still not clear. Another research shows that Uber has a complementary effect on small transit agencies, suggesting that customers are using Uber to circumvent the fixed-route, fixed-schedule problem.

In fact, Uber just recently (November 2018) **launched a bus service in Cairo (Egypt), called Uber Bus**. With this service Uber wants to show commitment to broadening access to its platform with a range of low-cost services. The service will be initially provided in Egypt and will be extended to the Middle East. At the same time, Uber announced also a more-lightweight App, **Uber Life**, able to work in low connectivity and on less performant affordable Android-based smartphones, bringing the services closer to rural areas and developing countries.

Resources used

Uber was launched as a platform, accessible to its users (drivers and passengers) through an app. Therefore, the main investment was the **software development**. No other assets were required since the company does not own vehicles.

Having the advantage of being one of the first services of this kind, Uber had no need to deal with competition, and therefore invested mainly in technology development and in promoting its service with incentives. The latter is also a reason for its low financial performance and the continuous need of additional funding. For every new city where the service is launched, Uber faces the same chicken and egg problem and thus needs to undergo substantial subsidizing of drivers and passengers.

So far, the total venture capital raised by Uber stands at \$24.2 billion, with Uber valuation in at \$72 billion.

Specific legislative, regulatory, and organizational environment

Uber started the operations in the USA, as a digital intermediary/platform, where no specific rules nor regulations appeared as barriers for such businesses. Without owning assets (e.g. vehicles), it was not seen as a transport operator, but merely as any other 'sharing economy' platform based on the free, unregulated Internet.

In the recent times, especially pushed by the incumbent taxi operators, who felt being left by their governments to unfair competition, **several cities have adopted special rules that apply to such intermediary services**. Following the demonstrations in Barcelona, Paris, Brussels, the local governments started developing their views on the status of such services and classifying them as transport services that need to abide to specific rules that apply to, for example, taxi operators.

The service is now often regarded as '**private hire car with driver**', and the growth of Uber is also reflected in the number of licences in those cities. The example below shows how the growth accelerated in 2012 when Uber started its operation in London.

Private hire vs. taxi licences in London



Source: <https://www.telegraph.co.uk/technology/2017/09/26/really-ubers-40000-drivers-35m-users-london/>

Good practices elsewhere

Uber's concept can be seen in every continent, mainly covering larger cities, with some markets saturated with competing offer of on-demand transport services. Besides **Lyft** and **Citymapper** described below, also **Grab**, **Didi Chuxing** in China (with 90% market share), **Ola** in India and **Careem** in the Middle East need to be mentioned. In terms of addressing vulnerable users these do not differ much.

Lyft is Uber's principal competitor, with main differences in service areas, offerings and culture. Lyft has cultivated a more playful, **driver-friendly image**, where drivers used to have a pink mustache affixed to the front of their car. In several other aspects, the services are similar and any additional offer can only provide an alternative to customers, while often enabling drivers to work for both. Lyft acted as an alternative often in cases when scandals over Uber arose.

SmartRide is a shuttle service that emerged from analysing the data collected from users of **Citymapper**, a public transport routing app. SmartRide addresses very specific demands and supplies vans for up to 8 passengers only in specific areas and on demand, complementing the public transport in London. The capacity of the vehicle does not require specific licence, nor it requires to have fixed routes, which in turn allows for more flexibility and more customised service.

Compared to Uber, these rides are shared with other passengers, which also results in lower prices and slightly lower comfort. Such services can help reduce transport poverty since they cover more rural areas, poorly served by public transport, where traditional on-demand services such as taxi would be too costly.

Critical analysis on business potential

Uber can be successful in urban, and peri-urban areas, poorly serviced by public transport, cities with elevated cost of taxi services, areas with safety risks (as Uber tracks users and provides safety features). Because of its on-demand nature, price estimation and cost splitting, it is more feasible in peri-urban and rural areas than the traditional taxi service.

Uber also offers different vehicles and the passenger can make his/her selection at the booking process. This can help to shape the offer to address more market segments since low income passengers can select the more economic option, business passengers the more comfortable one, whereas the traditional transport offerings, such as taxi, tend not to have only a single version and therefore a single pricing scheme. Uber's price discrimination can help address a wider market.

A multitude of research is ongoing on new types of mobility services based on ridesharing, sharing economy ('gig economy') and supported by digital tools (mainly smartphone/Apps), yet, there is **still no clear understanding on how these can impact the public transport service**. Nevertheless, there is clear evidence that the usage is growing, and that mobility of people is improving. All these new services (e.g. Uber, Citymapper) use data collected from passengers' smartphone to **analyse real demand** and make decisions on where to deploy or expand their service, often introducing it to new areas and addressing new segments (e.g. sudden wave of migrants, unannounced events...).

As mentioned earlier, the service would become more attractive for certain market segments if the means of accessing it would be adapted to certain user groups, e.g. access with a phone call, use of the App on low performance networks and on lower range smartphones, and having the possibility to choose the driver based on rating and gender.

Uber already operates globally. Only specific city/region/MS regulation can hinder its wider adoption. It would need to be assessed for each specific case how it can help improve transport poverty and adapt the regulation accordingly while ensuring fair competition.

When deployed to certain cities, Uber needs to comply with local regulations and its roll-out becomes slower and more costly. For example, some cities would allow only drivers with a valid taxi licence to provide their service through Uber, in others the drivers are bound to a single dispatching operator and cannot provide their service through Uber as well.

In general, Uber does not rely on specific business partners in order to start the service in a new location, but it needs to acquire drivers who enrol as transport service providers. The actual process and conditions depend on the market. Before entering into a new market, Uber needs to assess its regulations, taxation and other rules.

Stemming from its assets-free model, Uber is constantly dealing with **liability questions and insurance issues**, being involved in lawsuits from taxi companies and unions in several big cities (New York, Barcelona, Paris). There is a demand for such service, but overhead cost and costly legal battles threaten the business. Today, in the EU, Uber is regarded as a transport service, rather than a digital App, and therefore requires national authorities' authorisation to operate.

Uber's business model has been widely discussed and is more or less the same in all market where Uber is present. The company is highly focused on profits and usually leaves no room for competition, nor requires specific partnerships with e.g. local authorities or public transport operators.

To conclude, Uber's CEO, Dara Khosrowshahi, recently expressed its ambition for Uber to become a marketplace for transportation services, which is already happening by Uber providing **food delivery, dockless scooters, and trucking**. The CEO further announced his vision to create **a service integrated with public transport**. Also, on this matter, there are already some advancements, for example, in **New Jersey and Florida where is some cities public transportation was fully replaced with subsidized Uber rides**.

References

- www.theatlantic.com/technology/archive/2018/06/the-immigrants-fueling-the-gig-economy/561107/.
- www.businessofapps.com/data/uber-statistics/.
- Hall J. D. et al. (2018). "Is Uber a substitute or complement for public transit?". Journal of Urban Economics.
- www.inc.com/erik-sherman/what-uber-got-wrong-in-the-immigration-blow-up-at-jfk-airport.html.
- www.businessinsider.com/delete-uber-hashtag-jfk-airport-taxi-strikes-2017-1?r=UK&IR=T,
- www.inc.com/jessica-stillman/ubers-ceo-just-took-extraordinary-action-to-help-migrants-separated-from-their-children.html.
- www.uber.com/en-BE/diversity/immigrants-at-uber/.
- www.euractiv.com/section/future-of-mobility/news/uber-loses-eu-court-case-against-french-criminal-charges/.
- www.euractiv.com/section/digital/news/uber-france-spar-over-whether-company-is-a-transport-service/.
- www.theguardian.com/commentisfree/2017/nov/13/uber-lost-appeal-workers-employment-rights.
- www.curbed.com/2018/5/8/17330846/uber-lyft-mass-transit-bus-transportation.
- www.theverge.com/2018/2/15/17016272/uber-khosrowshahi-public-transportation-bus.
- www.cnbc.com/2018/07/06/ride-hailing-could-improve-public-transport-instead-of-undercutting-it.html.

- www.iplanner.net/business-financial/online/how-to-articles.aspx?article_id=business-model-uber.
- www.techrepublic.com/article/new-uber-initiative-may-make-it-easier-for-seniors-to-access-healthcare/.
- www.forbes.com/sites/robinseatonjefferson/2017/10/26/seniors-find-driving-uber-satisfying/#2c276ac82fc7.
- www.forbes.com/sites/lensherman/2017/12/14/why-cant-uber-make-money/#24f8e5c510ec.
- www.theguardian.com/cities/2018/mar/29/public-transport-transit-private-companies-citymapper-uber-whim-smart-buses.
- www.investopedia.com/articles/personal-finance/010715/key-differences-between-uber-and-lyft.asp.
- www.uber.com/en-EG/newsroom/built-for-egypt-uber-ceo-dara-khosrowshahi-launches-first-ever-uber-bus-from-cairo/.
- www.telegraph.co.uk/news/2016/11/12/uber--targets-elderly-passengers-in-rural-japan/.

18. Village House Service Centre

	
Type of service	Community service centre
Country	Sweden, Finland
Address	Box 1658, SE-111 86 Stockholm (SE)
Website	www.nordregio.org
Email	nordregio@nordregio.org

Overview

Description of the service

Ilomantsi is a municipality located in the Eastern side of Finland, near the border with Russia. The municipality has a population of 5,024 and covers an extensive area (3,172 km², of which 409 km² comprise water). Population density is 1.82 inhabitants per km², which makes it one of the less densely populated areas in Europe.

A computer course held in 2014 in the village house of Ilomantsi



Source: Eija Liimatta, the project initiator

In 2013, in this municipality, an initiative called **“Village House Service Centres”** was carried out, making use of not used local village houses and transforming them in order to accommodate different services provided according to the requests of the local inhabitants.

The Village House service centres address the challenges stemming from **outmigration and aging**, as well as the fact that services have been relocated to larger centres a considerable distance away.

The municipality of Ilomantsi has currently 18 villages, and **village houses** in 11 of them. The idea for developing the first village house as service centres was launched by a local civil servant Eija Liimatta who applied for LEADER funding to cope with the decrease in number of services. She recognized that social services play a crucial role in combating social exclusion in rural areas and can be the decisive element in limiting out-migration. This is, together with changes in demography, one of the most pressing issues for rural social policy.

The LEADER-funded project was conducted in 2013–2014 with a set of ambitious goals, which can be described as follows:

- develop Village House service centres and bring various services to the inhabitants of remote villages;
- create new modes of working in cooperation between different actors;
- increase security in the most remote villages;
- prevent social exclusion and strengthen the local sense of community.

Considering that the case study in Ilomantsi has not entailed any new transport solution to the local population, the choice of Village House centres as a remarkable case study should be properly explained. Arguably, **a transport solution is found not only when a new service is provided, but also when the mobility needs of people are met without the need to take them anywhere (as for the Buurtkar case study)**. This, however, should not be regarded as a standalone solution and ought to be better integrated with other existing options because people usually have other needs that require transport solutions.

Usage of the service

It was not possible to assess many figures about the performance of the pilot. Information collected only allows to assess the offer of services which were available to the locals and that include **health-care services, hairdresser, foot care, various educational courses, events, small trips, food services and are provided by both small enterprises and municipal officials** (e.g. nurses from municipal health-care centres) none of which were available before the project has started. These services are available in the service centres, based on reservations made by the village inhabitants themselves.

What facilitates the running of the service

The pilot project in Ilomantsi has resulted from the **tight cooperation between the municipality, local people, local associations, and businesses** in setting up a multi-service hub for the organization of several activities, whose beneficiaries would otherwise have to travel to the central communities.

The development started with identifying the service needs in the most remote villages by sending out a **questionnaire** to the inhabitants, so as to ensure that the provided services correspond to citizens' needs. As the project evolved, progressively, the associations and inhabitants also took the lead and coordinated the services directly with the service providers.

In the beginning, some **barriers** have appeared, **more related with cultural attitudes than with institutional barriers**. In fact, the main difficulty relied in **generating trust** in the project necessary to activate people. This happened because of some negative attitudes caused by the general mistrust and a trend of disappearing services in the villages. However, as the **local inhabitants were invited to contribute to planning** the activities, they became more

enthusiastic and the service centres became more popular. During the planning and development phase, it was found important that the initiator, as a representative of the municipality, visited the village house service centres every week to plan and discuss with the village associations and inhabitants.

It was also noted in the progress reports available online that the **attempts to involve inhabitants and service users from other villages and municipalities had failed**. According to the final report of the LEADER project, this lack of cooperation between villages should be overcome as soon as the other surrounding villages decrease in size and are “forced to cooperate”. The report also notes that a specialized “bridge-builder” would be needed to bring the villages together and coordinate their activities.

In terms of drivers, it is important to stress that **the existence of active village associations is an important prerequisite for establishing service centres** that follow this model. Village associations are not new but their more active involvement in service provision is a novel phenomenon. Their goal is to assist those living in settlements with scarce population.

Funding received from the LEADER Programme was other important enabler as it allowed to employ a person in the municipal administration to coordinate the approach and develop it.

One of the major insights of this project consisted in realising how much work and business opportunities could be developed in these small villages and this is particularly attractive for entrepreneurs who provide several services and not just one.

An expected future challenge related to the service centres is the negative externality of aging of the population and outmigration. Since the implementation of the idea relies on village associations that are mainly run by elderly individuals in the village and those who are still working usually lack the time, **there is a risk that there will no longer be active organizers in some years**.

Performance on transport poverty reduction

According to the fact sheet of the initiative written by Nordregio and developed under the Interreg BSR Programme Mamba project, the initiator of the solution wished to address the generally apathetic atmosphere in the remote villages caused by the combination of outmigration and aging followed by the centralization of services. This phenomenon has led to deplete some of the potential of rural areas and the well-being of the few citizens who still live in these areas. **The service centres can in this way be regarded as a crucial resource to activate the villages and to improve the social ties and the sense of community**.

The project was methodologically rigorous, as it was funded under the LEADER initiative. The planning phase has carefully started with a diagnosis of both social and economic problems of the citizens. Results of this survey have clearly pointed out that the **main needs of residents refer to information technology training, on the one side, and private health services, on the other side**. The initiator of this measure reported that it was not difficult to attract to Ilomantsi Village centre the service providers responsible for fulfilling these needs. Therefore, one should expect that, at least the vast majority of needs were met.

Due to the lack of knowledge about the ex-post results, information that could help us to determine the performance of this initiative in reducing transport poverty was also not available. Therefore, there is no understanding about how many trips were not required thanks to the provision of these services locally.

An additional outcome was the establishment of three new companies in the villages to provide services. Two of them provide massages and one provide IT courses. The entrepreneurs who started these businesses were previously unemployed, thus these new jobs should be regarded as an additional asset that the project has brought in. In addition to this, it is important to mention that the subsistence of the service centres beyond the lifespan of the LEADER subsidy can be considered a token of the success of this initiative.

Resources used

The project received LEADER funding in 2013-2014 for rural development initiatives. The overall funding for the project was approximately 75,000€, of which, funding from the EU was 24,637.5€, national funding was 22,612.5€, the share of municipal funding was about 7,500€, the share of private funding was 5,000€, and 15,000€ was collected through volunteer job.

Private service providers get a direct payment from their customers (e.g. hair cutting, manicure, an IT course) at a market price, whereas the services provided by the public-sector actors (nursing, health-care etc.) are developed as part of their regular work without any financial compensation.

Village House Service centres were established in local village houses. Therefore, **the material infrastructure was already available and could be used for free**, which made it easier to attract private service providers. **The running costs for village houses (e.g. electricity, cleaning) were covered by the project, which has also paid the wage of one half-time employee (the initiator of the idea).**

Specific legislative, regulatory, and organizational environment

In implementing and maintaining village houses as service centres, active village associations have been central, as well as the **involvement of enterprises and the municipal health-care centre to actually bring their services to the remote villages**. There have not been any challenges in finding interested entrepreneurs willing to bring their services to the remote villages, as they were able to **use the space provided by the village houses free of charge, profit economically and increase their customer base**.

As noted, the approach was initiated and developed by an employee of the municipality of Ilomantsi. The public sector plays a major role in the Nordics social economy, as they sought to deliver social value more than in incentivising the arise of companies seeking profit. But there was no clear cooperation with other levels of governance in developing the idea or implementing it, but funding from the EU in the form of the LEADER funding allocated to develop the idea was crucial.

During the LEADER project period, it was found important that the initiator, as a representative of the municipality, visited the village house service centres every week to plan and discuss the development of the different activities with the village associations and inhabitants. **Many inhabitants had negative attitudes toward authorities because of the extensive decrease in service provision in the villages**. Because of that, building trust and belief in the potential of the service centres required frequent personal participation to increase trust and work to increase the sense of ownership and responsibility for this common project.

After the end of the LEADER project, the activities in the village houses have continued, and are now run entirely under the aegis of the village associations.

In conclusion, there were no institutional or legislative barriers to the establishment of the service centres, besides the fact that in order to use the school premises as a service centre and to ensure health-care services, contracts were agreed with the relevant departments of the municipal authorities.

Good practices elsewhere

Even if in 2015 the municipality of Ilomantsi applied for funding for a new LEADER project but was not successful, it is worth mentioning that the Village House services received publicly recognition when it won the Finnish Rural Policy Committee's Best Practice prize in 2014 in the category of cooperation. This prize has allowed to increase the reputation of the project and has potentially led to the creation of others multi-service centres.

For example, nowadays there are ongoing activities (including IT training, gymnastics) carrying out on a weekly basis in the Kivilahti village house. There are also different courses (e.g. crafts) and outdoor activities (e.g. gardening) organized seasonally.

The Hattuvaara village house was established in the school premises, which has closed shortly before due to the low number of children's in the region, and now offers to the community a place where several activities take place, especially in the summer.

Another project that has been created on the footsteps of Ilomantsi was developed in the south Finland area of Järvikylät and received also funding from LEADER. In this case, the project arose from the initiative of a local resident which has made a proposal for the development of new ways of providing domestic help and care services, relief workers for informal carers, meals-on-wheels services, day-care services, and some recreational activities. The local authorities of Järvikylät have taken the lead of this project and submitted a proposal to LEADER funding, guaranteeing that they would financially support the project in case the project would be refused (which it wasn't).

Critical analysis on business potential

In Finland, as in several other countries that are affected by isolation, some villages have central infrastructures that are still in good shape and can be reused as multi-functional hubs where services could be provided. Local authorities should identify institutional buildings which are empty and make them publicly available. They should perform a similar task with other assets, such as vehicles.

There is also a need to **explore mobility-driven options**. For example, a free-floating car service or a collective carsharing scheme could be organized, working under a strict regulation. This vehicle, which might be a spare one included in the municipal fleet, could also be used to take the citizens to this intermediate house, where the services are provided, instead of asking participants to drive their own vehicle. This car could eventually be driven by a professional driver and transport goods (not only inbound but also helping to deliver the products of local farmers in the main cities).

Local authorities should explore **funding mechanisms** that employ people to act as moderators in these villages, that can facilitate processes and work as "bridge-builder", following the recommendations of the final report of the LEADER project. It would be important to find a technician locally based who could respond to the needs of the individuals and that could jointly manage a group of village houses and set up a Local Action Group, assembling all the relevant stakeholders and to submit this model for funding

with a focus not only in the broad rural development and competitiveness promotion but especially on employment and/or integration of migrants, who could start working in empty buildings and driving unused vehicles provided that is for the benefit of the overall community. This member wage could help integrating existing projects, whilst bringing urban economy knowledge-base

The **business potential** seems to be broader than the one presented in the Ilomantsi case study. This initiative can link up with the existing social services, such as meals on wheels, school transport, transport to medical centres and others emergent activities, such as tourism, and rely in novel applications such as the “Freelway tool”.

The Village Service centres is a **low-cost solution** and firmly rooted within the locality, which can be easily replied in several other locations. Throughout Europe, regions are experiencing, to some extent, a declining remote rural population with consequent challenges in delivering social services for an isolated and increasingly aging population. At the same time that rural areas experience population losses, the service infrastructure and the availability of public and private services also decline. In fact, small rural settlements frequently have no schools, health centres, social care facilities, post office etc., and access to such services elsewhere is restricted by a fragile public transport system. This makes the transference of the Finish case study very interesting.

However, it is important to retain that the project was reasonably successful in a country that performs particularly well in terms of participation and employment rates. In other countries, where a lower share of the population is engaged as volunteer and unemployment is higher, this approach might require a higher involvement from the local authorities and from the local associations, such as charities or local social security services.

References

- www.maaseutu.fi/en/the-rural-network/good-finnish-ideas/a-new-way-of-providing-local-services-in-the-jarvikylat-area/.
- www.freelway.com/.
- www.mambaproject.eu/.
- OECD (2018). “Rural 3.0. A framework for rural development”
- Nordregio (2017). “Social innovation in local development: lessons from the Nordic countries and Scotland”.
maakaista.fi/vaara-karjala.

19. Welcome to Berlin Ticket

	
Type of service	Public transport ticket for refugees
Country	Germany
Address	IPLZ 11520), 10096 Berlin (DE)
Website	www.bvg.de
Email	info@bvg.de

Overview

Description of the service

In 2015, in Berlin, 55,001 refugees have been registered; 1,091,894 in the whole Germany. Most of them arrived between June and December 2015 resulting in constantly overstrained municipal authorities. In the very first place, they were responsible for the organization of the registration process, the provision of a proper accommodation, the satisfaction of basic needs, and other supportive actions (further guidance, medical and psychological treatment).

As a result, many initiatives from the side of the Berlin residents emerged and basic infrastructures distributed across the city had been created on the basis of enormous **voluntary commitment**.

Very soon it became obvious that the refugees would need to travel throughout the city in order to be able to attend formal appointments or receive support of any kind.

Due to lacking financial means and missing information regarding the public transport and tariff system, many refugees were travelling without any ticket throughout Berlin forcing the ticket controllers to either raise penalties or to let them pass (with possible consequences for their own jobs).

As a result, the Berlin Senate decided, together with the public transport operators, to introduce two measures for solving the before mentioned problem:

- Upon their arrival refugees were provided a ribbon allowing them to use the public transport for free.
- After their registration they were provided the **“Welcome to Berlin” ticket, valid for three months**. Similar to the student ticket, the ticket for refugees has to be bought by all refugees for 26€/month. The reduced tariff was directly paid from the officially

Performance on transport poverty reduction

This solution can be considered as very successful in terms of transport poverty reduction. Although the provided ticket reduced the amount of spendable “pocket” money, the refugees were neither higher nor better off than locals. The 26€ that had to be spent allowed them to perform the trip with a certain dignity (because they paid for it) and prevented them from experiencing negative comments as a result of social envy from locals since the ticket price was close to the social ticket.

Resources used

Since public transport in Germany is one very central component in creating comparably equal living conditions and is thus considered as a central pillar of services for the public, many vulnerable groups in Germany benefit from reduced fares in order to increase their ability to be an active part of the society.

The chosen solidarity principle (compulsory ticket that is being purchased by all persons of the same group enables the service provider to reduce the prices) that has been chosen for the refugees (and is being practiced quite a long time now for the student ticket as well) was described as not imposing any additional burden on Berlin's household.

Specific legislative, regulatory, and organizational environment

The ribbons/ tickets and procedures related to it had to be closely coordinated with all other stakeholders especially the Verkehrsverbund Berlin-Brandenburg (VBB) the public transport authority covering the federal states of Berlin and Brandenburg.

Good practices elsewhere



In Canada, the program **Free Bus Pass Welcome**, funded by the Victoria Regional Transit Commission (VRTC) and jointly administered by BC Transit and the Inter-Cultural Association of Greater Victoria (ICA), is open to any refugees who have resettled in the region between December 1, 2015 and December 31, 2016.

It gives opportunity to resettle in the Greater Victoria region with a free one-year bus pass. This initiative was a response to the unfolding crises in Syria and the Mediterranean.



The **Free Bus Pass initiative** is a collaboration between the Swedish Migration Board, the County Council and Kalmar County Transport, the new bus pass is available to all asylum seekers living across the county.

According to the initiative, Refugees living in Kalmar in southern Sweden receive free bus passes valid for the whole county, as part of a unique venture to increase

mobility and integration within the migrant community.

As per the migration board, the programme is designed to reduce isolation for those living far from larger communities in the county, such as the asylum accommodation in Helgesbo, which is about 40km outside Kalmar.

Critical analysis on business potential

There are no real markets available. Since other cities worldwide are experiencing growing immigration by refugees (especially in Europe and in the U.S.A.), this approach might be attractive to other cities as well to reduce transport poverty of refugees, reduce conflicts by supporting them to attend necessary appointments and prepare their integration as equal citizens (even if only for a limited amount of time) of the urban society.

The implementation has been prepared by the state-owned transport service provider BVG. This required a close coordination between the BVG, the regional transport authority and the municipal departments. Especially those department responsible for the registration of refugees, the department responsible for providing the refugees with financial means, and the financial administration of the municipality as the approving authority are important stakeholders that need to support the process in a rather proactive manner.

References

- www.berlin.de/fluechtlinge/infos-zu-fluechtlingen/fakten/artikel.436797.php.
- www.tagesspiegel.de/berlin/bvg-und-asylbewerber-in-berlin-die-bvg-sagt-welcome/12480134.html
- www.morgenpost.de/berlin/article206313563/Fluechtlinge-in-Berlin-erhalten-BVG-Ticket-statt-Bargeld.html
- www.berlin.de/sen/archiv/gesoz-2011-2016/2015/pressemitteilung.392291.php
- www.bvg.de/?section=downloads&download=1842
- nextcity.org/daily/entry/refugees-free-bus-pass-victoria-bc-canada
- www.thelocal.se/20150727/asylum-seekers-in-swedish-county-get-free-bus-passes

20. ZOOV

	
Type of service	Demand-responsive transport scheme
Country	Netherlands
Address	7100 AC Winterswijk (NL)
Website	www.zoov.nl
Email	info@zoov.nl

Overview

Description of the service

ZOOV is a **transport on demand** service for people that have no other possibility to travel within the **region Achterhoek in The Netherlands**. It is one of the **Dutch Regiotaxi system** schemes. The system is operated by normal cars, taxis and small busses. In total 40 vehicles are providing the service. Next to **ZOOV Tailormode**, there are two other branches:

- **ZOOV School:** this service is dedicated to children with reduced mobility allowing them to commute from special schools within the region.
- **ZOOV Work:** a dedicated transport service for employees of a special company, which employs people with reduced mobility. With small taxi buses, the employees are collected at home and brought to and from the company.

The operation area includes the surrounding of the Achterhoek with a scope of 40 kilometers.

A trip has to be pre-booked by phone or via its website and should be booked at least an hour in advance. The system of ZOOV has a bandwidth within timing. A vehicle can be a quarter of an hour sooner or later than the appointed time. Within the system, it is possible that a vehicle will make a detour because of the destination of another passenger. Most trips are made based on the departure time of a trip, the time of arrival at the destination is less important for the passengers.

The target groups are all the people in the region Achterhoek: visitors, citizens and students and in particular for people with reduced mobility.

The system operates in the whole region, a rural area with some small towns and villages. The most important destinations are the city centers of Winterswijk and Doetinchem and the hospitals in both municipalities.

The initiative started in January 2017. The reason to start ZOOV was the shift of the responsibility of the regional taxi system from the province of Gelderland to the region Achterhoek and its corresponding municipalities. The region Achterhoek became

responsible for transport solutions for everybody. The scheme is aimed at minimizing costs through the integration of different target groups in one system.

Next to ZOOV, traditional public transport is operating on the most important axes within the region. Next to buses, two rail connections operate in the region Achterhoek: Winterswijk – Zutphen and Winterswijk – Arnhem. In the (near) future, conventional public transport will be transformed into a transport on demand system within ZOOV.

The system is working well. Customer satisfaction is 7.9 (on a scale 0 – 10). Punctuality is 95%. Organizations or companies can also buy trips with the ZOOV system (e.g. a hospital that buys all transport for their employees).

Usage of the service

ZOOV has each year about 7,000 unique passengers (The region Achterhoek has in total 260,000 inhabitants – 3,5 % of them uses ZOOV).

The people that use the system have register to ZOOV and book a trip in advance. Most of the passengers are people with reduced mobility. In the Netherlands, the Ministry of Health gives these people a so-called “indication” – this means that they can make use of dedicated transport like a taxi or ZOOV. 95% of the users are people with an *indication*.

The costs of a trip **start with a fee of 2.95€ and 0.47€ are added per km** (after the first 20 km, it will cost 2€/km)

The system is used for trips to:

Visit family / friends	79%
Medical appointment	56%
Visit to a hospital	42%
Shopping	21%
Day care	8%
Daily groceries	5%
Trip to bus / train	2%
School	1%

What facilitates the running of the service

One of the key success factors is the quality of the system. The KPI's are **punctuality and quality of the drivers**. On both aspects, the system scores are very good. A bonus is that most drivers are local and regional people. They know the region and speak the regional dialect which is appreciated by the passengers. The system has a **24/7 call centre**, so calls can always be answered.

Another success factor is the planning which is done by a third party.

The system has been running for 2 years and there is still room for improvement. Easy chances are:

- People within the region don't know the possibilities of the system. When this is improved, the number of passengers can easily grow.
- The direct roads to Doetinchem are congested. ZOOV can find solutions for this.
- The train provider has an app for their passengers. When information on ZOOV is integrated in this app, it would be easier to use ZOOV, especially for connecting trips.
- A MAAS system is in development. As soon as this system is implemented, ZOOV will connect to it. This gives a lot of opportunities for additional passengers.

The most important challenge during the implementation was the split between the planning of the service and the actual execution of the transport. When the tender was published, this gave a lot of hesitation with a lot of possible contract partners.

When the system was implemented the planning and transport partners had to get used to each other and to the way of cooperation. At the moment, this has proved to be one of the success factors of the system.

Performance on transport poverty reduction

It is very important for the region to keep all vital destinations accessible for everybody. Main destinations are hospitals, neighborhood centers and shopping centers. ZOOV is a door to door system, so using the system is easy and has a low threshold.

The system provides transport in the whole region, from and to all destinations for a fair price. The system is open for everybody and it is used mostly by people that have an "indication". With good connections to the existing bus- and train-system, it provides possibilities for the users of the ZOOV system to travel.

Resources used

At the moment of this research, it was not possible to have a full inside of the costs. The service is subsidized by the government which guarantees a good service for a very cheap price for the passengers. The system is based on the integration of different target groups.

Next to this, the systems also tries to integrate different transport systems. This strategy leads to a lean system with a limitation in costs. The system is replacing the expensive old taxi system, which lowers the costs both for the different governments as for the passengers. The costs have been raised in 2018. The total sum is not known at the moment, but it is known that the total costs have been increased by 6% (this is lower than the transport costs in the rest of the Netherlands with 10%).

To be able to collect and bring passengers from door to door, it was necessary to get the **exemption to drive in pedestrian areas** in the town centers. This was difficult to organize.

The system is a mix between public transport and private transport. Both transport systems have different terms of employment. Managing and mixing the terms of employment was very hard. This system is much cheaper than regular public transport and much cheaper than using 'normal' street taxis.

Specific legislative, regulatory, and organizational environment

ZOOV is not a public transport service, but a taxi transport (according to Dutch law). The costs for transporting people with a so-called indication (WMO) should be the same as the costs for public transport. This was a strict starting point for the development of the ZOOV system.

The government has declared that the price for a trip is based on 50% of the initial costs. Trips longer than 20 km are provided at a price of 2€/km. This price covers the full costs.

The tender for ZOOV specifically asked for a hard split between transport and planning. The argumentation for this specific wish is that **more types of transport, executed by different transport companies, are combined in ZOOV**. A hard split provides an even and honest division between modes.

The province of Gelderland, the region Achterhoek and seven different municipalities have signed an agreement to work together on ZOOV. The final responsibility lies within the seven municipalities.

Good practices elsewhere

ZOOV is **one of the good practices of the Dutch Regiotaxi system**. There are in total about 74 schemes in the Netherlands, which can be qualified as a so-called Regiotaxi. Some other Regiotaxi's from other regions, which can be mentioned are **PlusOV, Omnibuzz and Groenehartopper**.

On top of the other Dutch regional services, a good example is the **cross-regional service called Valys**. Whenever the disabled person has to travel further than the local area, one can make use of the so-called Valys system. Since 2015, there is a new form of service. The user can also book trips that go partly by train.

The user is guided from the taxi to the train and gets a Valys train ticket. In addition, the user receives a device that allows to get in touch with the contact centre. It also allows to track the respective person. An assistance is available at the transfer station and arrival station.

The Valys train card is returned to the arrival station. This service is available at a limited number of train stations from 7:00 to 9:00.

Good practices outside of the Netherlands combining disabled, elderly and transport of other vulnerable passengers is the **FlexDenmark** approach, also described in this collection.

Critical analysis on business potential

Regiotaxi is a service that combines several forms of transport (for elderly people, children or disabled people) and follows the respective legal and regulatory obligations to benefit from the subsidy schemes. The service as such might not have the business potential for any private operator that would like to start such a service. It needs public subsidies to be run. In the Netherlands, the Regiotaxi services are tendered to local and/or larger transport operators.

Several DRT and transport services for specific vulnerable users' groups exist elsewhere. The innovation specifically lies in the possibility to combine different forms of transport. This is already done in The Netherlands and can serve as an example for other EU Member States.

There is a high potential for transferability due to the large degree of flexibility in the set-up provided by Dutch law and regulations. Outside The Netherlands, it should be specifically investigated to which degree these combinations of transport of different vulnerable groups is legally and regulatory allowed. These forms of combinations exist already for example in Denmark with the FlexDenmark service, Scandinavian countries and Belgium. In Luxembourg disabled people transport is separated from the Bummelbus services, which aims specifically on elderly people and school transport.

A strong point of the Regiotaxi is its connection to the national and cross-regional transport through the cooperation with the Valys system.

In order to be able to be deployed in new segments, there is a need for some adaptation of the model to the local and national regulations and the legislation in that new market segment. As the Regiotaxi is specifically catered and intertwined with the Dutch legislation and regulation of the organisation of the person transport market, specific legislation for transport of vulnerable groups and subsidisation might need to evolve.

References

- www.zoov.nl
- www.valys.nl

DRAFT

Document History

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