

RURAL TRANSPORT HANDBOOK

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Introduction

Do you want advice on how to improve your existing rural transport service or introduce a new one?

This handbook is the result of work carried out within the European project ARTS, Actions on the integration of Rural Transport Services. It aims to assist you in the design, operation and evaluation of rural transport systems.

Within the ARTS project, eight public transport schemes in low density rural areas were tested and evaluated in eight different European countries – Austria, Finland, Greece, Hungary, Ireland, Sweden, Galicia (Spain), and Wales (UK).

Each of the demonstration projects included various measures. The Austrian, Irish, Finnish and Swedish demonstrations were all different types of demand-responsive services. The Hungarian, Greek and Spanish demonstrations were school transport integration services with the Welsh being an information-based service. You will find a detailed description of the different demonstrations at the end of this handbook.

The handbook gives you recommendations of a general nature, based on actual examples and conclusions from the ARTS demonstration projects, as well as from expert knowledge collected from the ARTS project members. The content is structured in four sections corresponding to the ARTS project phases:

1. Design and planning phase
2. Pre-operational phase
3. Operational phase
4. Evaluation phase

For each phase we set out which are the important steps you should take and which tasks you should perform. If necessary – to illustrate the task – we give you examples from the ARTS demonstration projects. In addition there is advice on problems and difficulties that can occur within each step under the heading “Be aware of”.

The diagram on the next page shows the various phases and their interaction with each other.

In the *design and planning phase* you delineate your area in terms of population profile, existing transport services, and transport needs. Then you should be able to determine if a new or improved transport scheme is necessary. If you choose to proceed, you outline the main characteristics and objectives of the scheme.

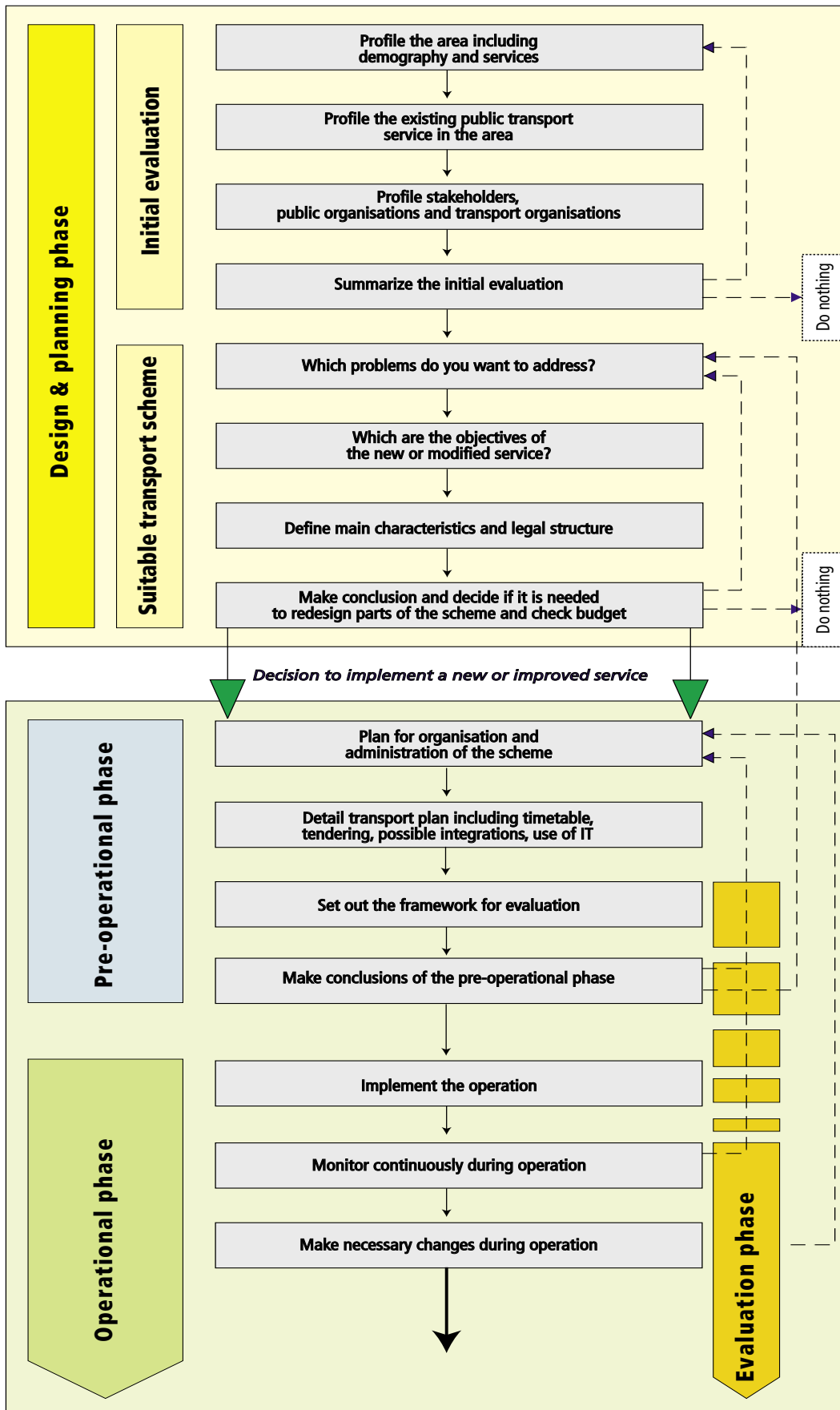
You enter the *pre-operational phase* when you have come to the conclusion that you want to implement a new or improved service. In this phase you plan your service in detail and also set out the methods for monitoring and evaluating the scheme.

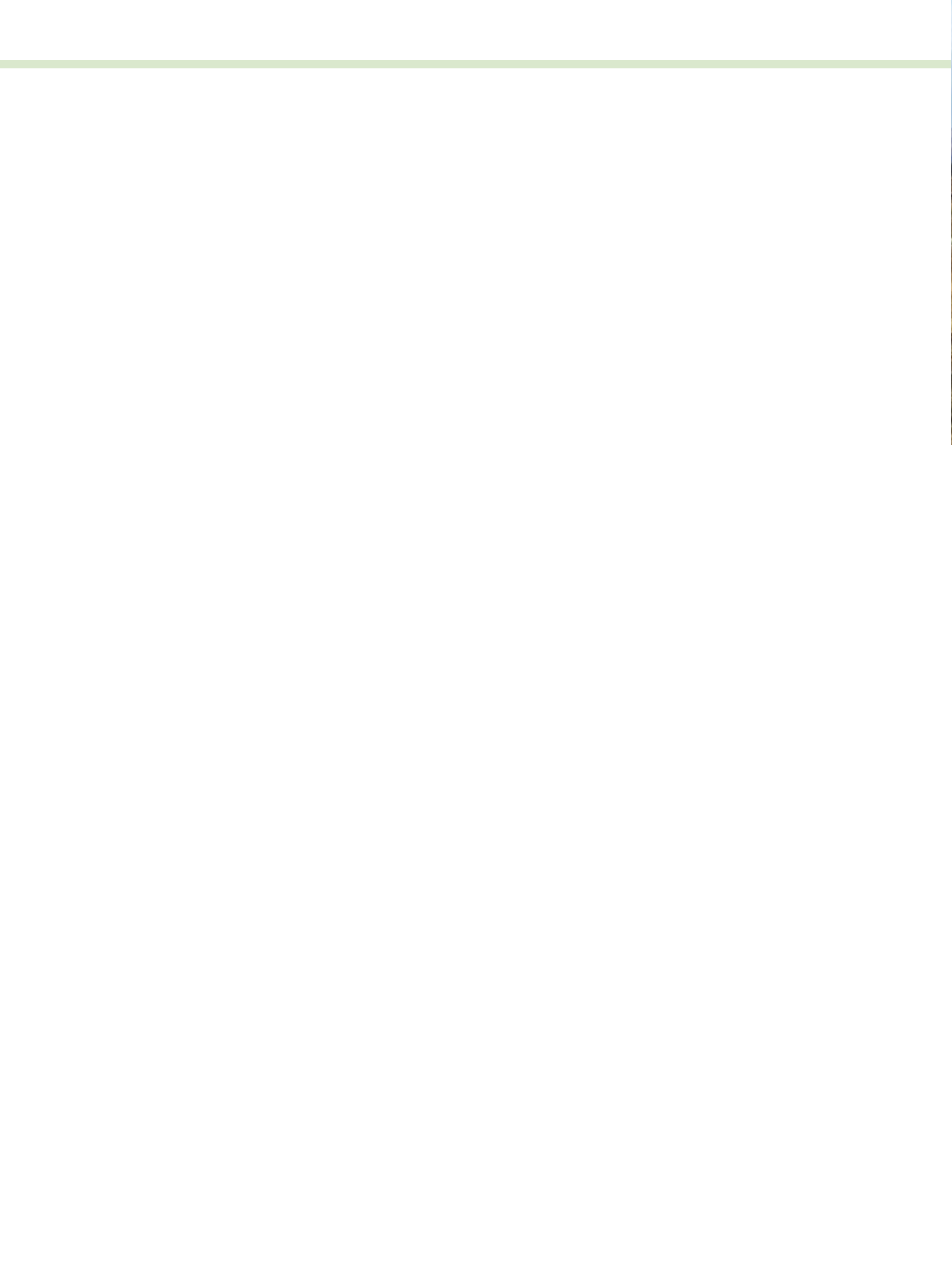
In the *operational phase* your scheme is running as planned in the pre-operational phase, but you have to be aware of new barriers, feedback from users etc. In all these three phases it is important to start the networking process as early as possible so as to build consensus between stakeholders.

The last phase, the *evaluation phase*, starts within the pre-operational phase. You collect data continuously and, at different stages of the operation, you evaluate your service and compare the results with your objectives.



Overview of the process







Design and planning phase


It is crucial to start your planning of a new or improved service with a thorough initial evaluation, where you define market needs, existing resources and organisational structures. After completing this step you should be able to determine the aims and objectives of your service, and finally – with the assistance of the ARTS demonstration schemes – to outline your service in detail.

Do not forget to start with the networking process as early as possible and to build consensus between stakeholders.

Initial evaluation

1. Area profile

➔ Delineate clearly the area covered by your service.

 **Example:** In the case of the Greek demonstration the service connected four villages to the main village of the municipality where schools for all levels are located. The demonstration was funded and organised by the municipality and was based on the idea of opening school transport to the general public. As the service was organised by the municipality the service area was initially restricted to the area within the administrative borders of the municipality. It soon became obvious to the organisers that elderly residents needed to have access to medical services, which are available at the local health-care centre, located in the neighbouring municipality. In order to provide access to the health-care centre, the service area was extended and three bus services per week were added.

The lesson learned is that the needs of the residents and potential passengers should be the deciding factor when identifying the area that the new services will cover.

In the Austrian demonstration the operation served mainly one municipal area, but the service was extended to a few buildings of the neighbouring municipality whose residents send their children to the same primary school.



Be aware of: Political and organisational borders such as municipalities, districts and provinces will often form the boundaries for operation and financing of the public transport system. Make sure though that access is provided to other local centres and points of interest, which are important destinations for public transport users. It is also important to choose areas without, or with very limited, alternative public transport solutions, otherwise the new service will add unnecessary competition to the current providers and operators. New service areas should complement those already covered.

It is also important not to over-extend by including too many dispersed destinations and over-stretching the service area under consideration. The new service should start with a few essential destinations and gradually add more (runs to pubs – Irish demonstration, evening youth services – Swedish demonstration) as it becomes established and successful.

- Study the demographic and socio-economic profile of the area, e.g. population structure, age profile, unemployment rates, car ownership rates.
- 👁️ **Example:** Good sources for this data are usually the national and regional statistical services. At the planning phase of the Spanish demonstration the population characteristics of the service area were obtained from the Spanish National and Galician Regional Statistical Institutes (INE). The most recent data available should be used and are usually derived from the national census. In the Spanish demonstration a two year old census was utilised. Statistics gathered in the municipalities helped to update the census data.
- 🌟 **Be aware of:** In an area with high car ownership, persons without access to a car are usually either young or old. In an area with low car ownership you may also find other target groups. For a general overview national statistics might be sufficient, but for detailed information the use of specific household surveys is recommended. Information on the modal split, dependence on public transport, destinations, trip characteristics, access to telephone etc. is crucial for the successful design of the new or improved services. Focus groups can reveal local needs and inadequacies.
- Delineate the dispersal of population and distance (e.g. in terms of travel time by car) from main services.
- List and display on a map the location and profile of basic essential services; health, financial, social, commercial, educational, employment, recreation, schools, (see Austrian demonstration in the appendix). Try to sort destinations according to usual/typical trip frequencies (e.g. school and work = daily, shopping = weekly, local administration = monthly).

2. Existing transport services in the area

- Profile and assess existing transport services and details of local transport providers. Include services provided by public agencies, private operators (bus/taxi), volunteer services, community services etc.
- 👁️ **Example:** The Irish demonstration area is served by a number of services operated by the public sector, the private sector and the volunteer sector. These include the following:
 - ◆ regional interurban and local bus routes (operated by both state and private bus operators)
 - ◆ ferries operating to all offshore islands
 - ◆ air services to the three offshore Aran Islands
 - ◆ voluntary and non-emergency health transport to day centres, to clubs for older and disabled people and to hospitals/clinics
 - ◆ school transport services, many of which are operated by private operators under contract to the state bus company
 - ◆ taxis

Other important issues: What contracts exist? How high are the costs? Revenues? Number of public transport runs/day? Public transport stops?

Display all these on a map giving details of routes operated.



Be aware of: Distinguish between private or public operators and take tendering processes and different types of contract into account.

Update your information as it can be old or incomplete.

In most countries it is appropriate for new public transport services to supplement the existing ones, not to compete with them. Intermodality – e.g. when the new public transport provides a good feeder service to those already existing – greatly improves accessibility.

Not only is the distance to the nearest bus/train station important, but also the number of runs per day defines the quality of the service.

➔ Profile and assess use of existing transport services.



Example: In the Finnish demonstration the Regional Council and the municipality had statistics regarding use of the bus services they had contracted after competitive bidding. However, in order to get detailed information, a passenger count was undertaken. This also provided data on the maximum number of in-vehicle passengers, which was needed when considering the size of vehicles to be used for the new services. Data on the use of school transport and other community provided transport was obtained from the municipality statistics.

The Spanish demonstration utilises empty seats on the existing school buses to transport the general public. The number of empty seats depends on the number of students transported and the capacity of the buses used. The Education Authority of the Regional Government of Galicia provided the data concerning the students using the service on each route. Capacity data was provided by the operators. Based on these two figures an estimate of the number of free seats on each bus was made and the new service started operation offering these seats to the general public.



Be aware of: Aggregated figures can be misleading, so use a disaggregated statistics wherever possible.

➔ Identify transport needs/patterns for different groups in your area (e.g. commuters, children, youth, older people and disabled people.)



Example: In the Austrian demonstration ALMA, the household survey (trip diary) indicated different transport patterns and needs for specific social groups:

- ◆ Employed persons mainly make trips to work (69 %), their share of shopping/supply trips is 14 %.
- ◆ 60 % of the trips of retired persons are for shopping/supply,
- ◆ 79 % of students' trips are for education.
- ◆ 21 % of the trips of housewives are service trips where they have to take or pick up someone.

Due to the dispersed settlement structure distances to essential services (e.g. grocery, bank, primary school) and public transport stops can be as far as 8 km.

Although car ownership is 523 cars per 1000 inhabitants, 9 % of the households do not own a car. Overall, 17 % of the population aged 18 years or older do not hold a driving licence, 4 % of all males compared to 29 % of females.




Be aware of: This is a very critical step in the process. This knowledge is important for your future work with the rural transport scheme. If the new service does not meet the needs of the target groups, this could result in insufficient demand. Problems could arise from

- ◆ a lack of accessibility of the public transport service
- ◆ routes not being well developed
- ◆ timetables not being harmonised
- ◆ cultural resistance among the target population to components of the service (e.g. mixing of different kinds of passengers such as the general public and school children or the use of technical equipment. Also the pre-booking of a trip via a Travel Dispatch Centre can cause difficulties for some people).

3. Existing public organisations and transport organisations

- Identify existing community groups, public agencies, contractors/providers. Describe the organisational structure within the different groups and agencies. Who are the stakeholders, key personnel etc? Where do you see barriers?

 **Example:** In the Irish demonstration, the following groups were identified:

- ◆ Local community organisations with volunteer committees
- ◆ Community development agencies
- ◆ Local development agencies
- ◆ Regional development agencies
- ◆ Other public agencies

Key personnel in each of the above types of organisation were identified as those working directly with the types of people being targeted for the delivery of new local transport services. All of the above organisations have democratic structures, involving boards and/or committees made up of volunteers from local communities and/or elected local/regional politicians.



Be aware of: It could be that, by law, the region is legally responsible for public transport, but local municipalities actually feel responsible in terms of securing basic social needs for their citizens where financing of a new rural transport service is concerned.

Also organisations or private companies could appeal against the new service or at least prevent its implementation, if they fear competition as a result (e. g. other public transport operators or taxi-operators in the region) or feel that their interests may be violated (e. g. parents organisations). Therefore it is indispensable to identify the local situation of stakeholders and existing public transport agreements at an early stage of the project and to involve the people concerned in an intensive networking process in order to find a balance of interests.

- Legal structure. What legal frameworks and rules exist for public transport in rural areas? Are there special rules for licensing? Other barriers?



Example: In Spain operators are directly contracted by the Regional Educational Authorities to provide school transport in rural areas for students at compulsory education levels. The law does not generally allow the combined transport of students together with the general public except in special circumstances such as those obtaining in the Spanish case, namely: low population density, widely dispersed settlements and absence of other conventional forms of general public transport. Furthermore, the Spanish demonstration vehicles were also not allowed to pick up passengers from stops on routes served by different operators holding the general public licenses for those routes. The legal framework that governs regular bus routes licenses is strict and does not allow other forms of public transport on the same route.

In Austria there are two types of license affected by rural demand-responsive services, the public transport route license and the taxi-concession. It is nearly impossible to get a license as a public transport operator for a specific route, if another license has been issued close to the planned route.





Be aware of: An important question is the opportunity of a small, perhaps new, operator to access the public transport market. Questions to be addressed in this context are:

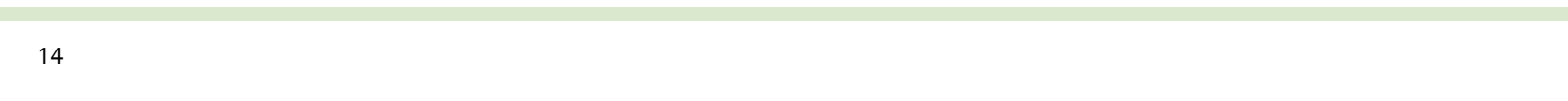
- ◆ Is the market very regulated, are there other competitors?
- ◆ Is it necessary to obtain a route license?
- ◆ Is there a tendering process for obtaining a license?
- ◆ What are the preconditions for obtaining a license (financial, equipment, education of staff)?
- ◆ Is the necessary license based on fixed routes or is route diversion allowed?
- ◆ Is the license limited in time?

In most cases, other legal questions also have to be resolved, because innovative services often do not fit into the conventional legal framework. It may be necessary to check whether all components of the service comply with legal requirements (e.g. engaging volunteer drivers, mixing of different types of passengers etc.). In some cases those obstacles can, probably, only be resolved with special regulations. You might consider getting legal advice if your intended

service does not seem to fit into the existing legal structure. In Austria non-profit organisations, like neighbourhood-taxis, are affected by the "association law", in order to avoid concession and taxation problems.

4. Summary of the initial evaluation

- Summarise the results of the initial evaluation. Present it to stakeholders for consultation and discussion. Check with the stakeholders if anything is missing and decide if you need to add data to your evaluation.
 - Detail the problems and inadequacies you have found in the initial evaluation of the public transport service. Decide whether to continue the analysis or, if there is no need to change the current situation, not to do so.
-  **Example:** The initial evaluation should describe the situation before any new measures are implemented: i.e. the public transport service, the target groups of the public transport services who have been identified, the mobility demand and mobility patterns of the people living in and visiting the area, and access to services. This will be the basis for further comparisons and will enable the evaluation of effectiveness, once the new services have been implemented.
-  **Be aware of:** When presenting the results to representatives from all relevant stakeholders, be very sure to obtain feedback. Consider contacting stakeholders other than those initially identified. Does the problem/issue which you identified in the beginning still exist?





Suitable transport scheme for your area

1. Description of the problem/issue

- Which of the problems/issues you have identified in the initial evaluation do you want to address (linked to the needs of different groups in the area)? Which group/groups do you want to address?

👁️ **Example:** In the Finnish demonstration, we addressed the need for elderly people, living in small villages or individual farms, to reach shopping and health services located in the centre of the municipality.

In the Hungarian demonstration, a school bus scheme was implemented where there was high demand due to regional restructuring of the schools.

In the Spanish demonstration, school buses were opened to the general public thus making public transport available to everyone in an area where there was no public transport before.

The Austrian demonstration – a new demand-responsive service – improved access for sparsely populated areas (previously without public transport), increasing the number of runs in between the infrequent daily bus service and connections to the main train and bus routes.

🌿 **Be aware of:** Tailor the service to the needs identified in the initial evaluation, for example: small on-demand vehicles in time periods and regions with low demand, which are complementary to regular bus services. Adjust the level of technology to the size of the transport scheme. You might not need high tech booking services when your target group (e.g. elderly women without driving licences) has no access to mobile phones or computers.

2. Objectives

- Based on the problem/issue and needs: what are the objectives of the new or improved service? Define your objectives ensuring that they are clear, realistic and achievable.

👁️ **Example:** In the ARTS project we decided to concentrate on the following seven objectives, which cover most of the needs in rural areas.

Objective 1: To improve the availability of transport services in rural areas.

Provision of services where, previously, there were none or very few. Arguably the most important of all the objectives, as it addresses one of the key reasons why people in rural areas experience social exclusion, namely: lack of transport services.

Objective 2: To improve access to essential facilities and services for rural inhabitants.

Physical access to goods and services – will people be better able to reach shops, the health-care centre, and social activities, as a result of the new/improved service?

Psychological aspects of whether scheme users and potential users perceive improvements in access as a result of the introduction of the services.

Objective 3: To improve physical access to transport services.

Objective 3a: Door-to-door.

Access in terms of whether the service is door-to-door or whether passengers have to make their own way to a stop to meet the service.

Objective 3b: Low-floor vehicles.

Access to the vehicles used to transport people in rural areas. The introduction of low-floor, easily accessible vehicles is considered important in order to improve access, although in cases where it is not possible to provide such vehicles, assistance provided by the driver is also important.

Objective 4: To make more efficient use of existing transport services via integration with other services.

Integration between the new service and existing transport services. It is important when introducing new transport services that they complement (e.g. acting as feeder services) rather than compete with existing transport services.

Objective 5: To provide an improved level of service to users, based on high quality information.

The information and publicity which enables people in rural areas to make more efficient use of transport services. It is often the case that new transport services succeed or fail depending on whether or not people are aware of them and the opportunities they offer.

Objective 6: To provide integrated services at a reasonable cost to users.

Creating a fair and understandable system with various ticket options and providing services at an affordable price for potential users.

Objective 7: To provide cost effectiveness through the integration of public transport services.

Cost effectiveness, in terms of creating reasonable coverage of operational and capital costs and to get an efficient occupancy rate.



Be aware of: Make sure that the level of each objective is not too ambitious. It is easier to extend operating hours or trip frequency after a service is implemented than to cut it down later, e.g. for financial reasons. Also be aware that different stakeholders can have different levels of expectation for each objective.

3. Main structure of your scheme

- Define the main characteristics of your service in order to fulfil the objectives and meet the transport needs.



Example: In the Austrian demonstration, some commuters and pupils need to catch the morning train or bus. The demand-responsive services start early, therefore, to make this possible.

The Irish demonstration has adopted the following levels for the main objectives:

- ◆ To try to provide a transport service for people with reduced mobility.
- ◆ To work with existing transport providers and relevant agencies to develop a comprehensive local transport network.
- ◆ To contribute to the infrastructure needed for local development and to help community groups and community initiatives develop their full potential.

The following measures were implemented in order to meet the above objectives:

- ◆ Multi-agency co-ordination of local operations
- ◆ Local, flexible and accessible demand-responsive services
- ◆ Interchange between local and longer distance services
- ◆ Use of information and communication technology for information, booking and scheduling
- ◆ Branding of local services.



Be aware of: Try to co-ordinate and integrate existing transport services as far as possible. A taxi, a school bus or a health transport vehicle can also be used as a public transport vehicle. This strategy avoids investment in additional vehicles and equipment and makes the rural transport solution affordable in the long run.

Keep the service level as well as the service area on a small scale at first in order to avoid unforeseen expenses. Extensions can easily be made once the service is already running smoothly.

Stick to local demand and avoid operating at regional level, but make sure that the rural transport system coincides with regular bus or rail services in order to provide regional connections.

- Identify appropriate expertise and staffing requirements.



Example: On the Board of Management you need expertise and experience in: management of transport projects, financial management, IT, community development, local knowledge. Essential staffing requirements include: manager, administrator, dispatchers and drivers.

- Identify appropriate technology.



Example: In order to travel on the Swedish demonstration service, the passenger has to book the trip in advance (on-demand). There already was a travel dispatch centre in the municipality for booking and co-ordinating of special and health-care services. The Swedish demo service was therefore integrated in this travel dispatch centre. A change of software at the beginning of the project led to some problems; it is important to implement well-tested technology to avoid problems.

In Wales the decision regarding the type of technology to implement in the demonstration area was influenced by the desire to achieve compatibility between real-time information systems across Wales. In order to ensure continuity in provision, it is important that real-time information does not stop at the county boundary, as bus services often run across a number of counties. In the future, it is hoped that other rural counties in Wales which wish to implement real-time information systems will follow the demonstration example, so that travellers will benefit from integrated real-time information across Wales.



Be aware of: As high tech is often expensive, decide if technology helps you in fulfilling your objectives. Check the availability of landline/mobile phones if used for ordering/delivering of services and the existence of Internet connections if needed. Check also whether travel dispatch centres which could be used in the area already exist. High-tech solutions are useful as long as devices and equipment are already in place and can be used at low additional cost. Phones, for example, exists almost everywhere and can be handled by volunteers, taxi drivers etc. without any special qualification. Cost for any technical equipment should always be in an acceptable ratio to its benefit (e.g. number of passengers transported).

- Detail the legal and organisational structure of your service.



Example: The Austrian demonstration is a collective taxi operated by a private, non-profit association. The members are also the drivers who receive only a moderate remuneration for their efforts. Accordingly this organisation is more a charity organisation and is not liable to tax and other regulations which affect professional transport operators.



Be aware of: Define how the intended public transport service can be organised. As a first step do not try to change, but to cope with the existing legal and organisational framework. To categorise the service as a pilot demonstration may help allow exceptions. If arguments for a good transport solution are strong, higher authorities may convince lower ones to allow exceptions.

- Detail links to other community groups and public agencies. Don't forget networking.



Example: One of the most appropriate approaches to links and networking is for the relevant local organisations and agencies to establish a local transport partnership. In the Irish

demonstration, for instance, this involved the development agencies for the Irish and English speaking parts of Ireland, the regional state agency for health care and social services, the local educational agency, a local volunteer group hosting the travel dispatch centre, and representatives from a number of local community groups.



Be aware of: Start networking as early as possible in the project. Forge links to potential users and providers. Providers include operators (transport and travel dispatch centres), financial bodies and various sectors of the municipality.

➤ Calculate expenditure and income (budget) at a general level.



Example: Checklist (for a detailed list, see the appendix)

- ◆ Administrative costs
- ◆ Capital Costs
- ◆ Operating Costs and/or sub contracting costs after competitive bidding
- ◆ Income



Be aware of: Long-term financing is crucial. National funding programmes, for example, sometimes tend to provide start up financing only, but long-term financing must be secured. Subsidies for rural systems are often a problem because the cost per trip is very high. It is essential to gain political support in order to ensure the long-term operation of the new transport service. The benefits of the service must, therefore, be emphasised in a comprehensible way to gain support from, preferably, all political parties, which helps to avoid any discontinuation of the support after elections.

4. Conclusion of the design and planning phase

➤ Present the analysis of the design and planning phase to stakeholders and decision makers. Depending on the feedback, decide if you need to redesign, to cancel the planning or to continue into the next phase.



Pre-operational phase

1. Organisational and administrative issues

- Outline a plan of action regarding the organisation before and during the operation of the service and, in particular, setting out the decision making structure.

👁 **Example:** The objectives of the Swedish demonstration required bringing together the administration and budget of all publicly funded and on-demand services within the same committee in the municipality and unifying the transport rules/regulations for the different user groups (fares, operating hours, etc). The plan of action included e.g. transferring staff from different committees to the transport committee, modifying and unifying fares and regulations and informing politicians, residents and other stakeholders about the changes. It was important to consider what steps should be taken at which time in the process.


- Build consensus among stakeholders and actors.


👁 **Example:** When the rural service involves the integration of school and regular passenger transport it is essential to build consensus with parents, who may have reservations about allowing their children to mix with adults in the same vehicle. Gaining the parents' acceptance was crucial for the success of all ARTS demonstrations which concerned school transport.

It was essential for the success of the Spanish demonstration that the separate Education and Transport Authorities of the Regional Government of Galicia reached an understanding about opening school transport services to the general public. These two public bodies have different competencies with regard to school transport: the Education Authority provides the funds and the Transportation Authority licences the operators. The former supported the project from the very beginning, while the latter at first was reluctant to implement it, although they eventually agreed.


Building consensus with the operators who were involved in the Spanish demonstration was also very helpful in overcoming the scepticism that some of them expressed about providing services not included in their contracts with the Education Authority. The fact that the Education Authority actively supported the scheme was very helpful in gaining the operators' consent.

- Identify personnel to conduct and manage the process, e.g. personnel responsible for competitive bidding, marketing and training.

 **Example:** Training and planning in the Austrian demonstration was organised by the University of Bodenkultur, Vienna, within the ARTS consortium. The Austrian demonstration organisation is linked to the municipality. The social aspect – to improve the public transport situation and access – is a strong incentive and also accounts for the successful marketing in the area.

 **Be aware of:** In rural areas, qualified people are often scarce; it can be difficult, therefore, to recruit enough staff who are suitably qualified.

- Detail the training needs you have identified.

 **Example:** In the Austrian demonstration the drivers are responsible for the whole trip – from the booking via mobile phone to the safe delivery of passengers to their destinations. Training for this process was carried out in workshops.


In the Irish demonstration an induction programme was carried out. The purpose of the induction was to introduce new workers to the overall philosophy behind the service, the general working environment, their specific functions and duties, employment conditions and procedures, health and safety procedures, as well as to answer any queries and complete any necessary paperwork. The induction/training programme for the personnel of the travel dispatch centre, and especially the dispatchers, covered: understanding the passenger, telephone manner and technique, computers, office equipment, making bookings, getting to know the area, emergency procedures, general office procedures, and accounts. The general induction programme is useful for new board members, who will also need to be kept up-to-date with the latest developments in company, employment, health & safety and transport law.

2 Transport issues





- Explain thoroughly the type and scale of transport services you are planning. Detailed description of the proposed services should include:


- ◆ operating hours
- ◆ booking hours
- ◆ the type of service (demand-responsive, social car scheme, fixed route, etc.)
- ◆ information regarding the proposed service (include realistic schedules and frequencies)
- ◆ nature and numbers of potential passengers
- ◆ fare structures
- ◆ types of vehicle to be used (owned, borrowed, contracted in, passenger capacity, level of access for people with reduced mobility, garaging and maintenance requirements)
- ◆ routing of services (mapped)
- ◆ scheduling and co-ordination of the services


- Outline a plan of action regarding the operation of the service. Detail the work to be undertaken on a month-by-month basis.

 **Example:** The following plan of action was outlined for the Finnish demonstration service:

- ◆ October 2001: The study of current passenger transport and a development plan were ready.
- ◆ 19.11.2001: The municipal executive board in Leppävirta decided to start a two-year demonstration, to start on 3.6.2002.
- ◆ 5-25.3.2002: A tendering process for operators to provide minibus and taxi services.
- ◆ 3.4.2002: The municipal technical board selected the operators.
- ◆ Early May 2002: Contracts between Leppävirta municipality and the operators were completed.
- ◆ 3.6.2002: Transport services started.

-  **Be aware of:** Make sure you start your planning at an early stage, since a number of different steps can take time, e.g. delivery of buses, changing of laws, legal exceptions and permits.
- Apply for legal permission if needed. When the structure of a new public transport service differs from the standard legal organisational structures, it is highly recommended to clear any potential legal problems beforehand.
- Set out the tendering process you will use if contracting services.
-  **Example:** In the Swedish demonstration one of the main objectives was the integration of already existing and sometimes parallel services (on-demand, elderly/disabled transport, and health transport). To facilitate integration, it is important that the operator for all the services be the same (or to set up an alliance of small operators) and that the travel dispatch centre co-ordinate all trips in the booking procedure. It is important that this issue be dealt with in the tendering process. In the Swedish demonstration, the level of integration was not as complete as had been hoped, and the remaining problems will be tackled in the future tendering process. There is a possibility that the price offered in the bidding will then drop because of lower operating costs.
-  **Be aware of:** Ensure that the notice of the tender is widely available to all potential bidders. Make sure that some of the existing operators/suppliers can meet the tender requirements, so that they can compete for the contract. Determine the budget available for each contract before issuing the tender. Ensure that the procedures for submitting the bid and the evaluation of all bids is clear to all potential bidders and to your bid evaluation committee.
- Detail any use of IT or support/communication systems your service needs.
-  **Example:** In the Welsh demonstration area, a system was installed to provide real-time information for bus services in the county. This technology was already in use in other Welsh counties and it was considered important that the system to be implemented in the demonstration area be compatible with existing systems. The system is controlled by a central server which provides real-time information for displays at bus stops, voice message services via landline telephones and SMS messages for mobile phones.

In the Irish demonstration, the Travel Demand Centre undertook the following activities bilingually: take bookings from people requesting the bus to divert to pick them up and provide a central information resource on all local transport services and operators. In order to undertake the above it was important to detail the resources needed in terms of: hardware, software, passenger information, and vehicle fleet management.
-  **Be aware of:** Potential users of the public transport system must be able to use the system. If, for instance, computer availability is low it is not appropriate to implement internet booking. In the Austrian demonstration area only 16 % of the households had access to a computer with an internet connection, so trip reservations were organised via telephone.

Do not underestimate the costs of operating a high tech system. Real-time information systems are not only expensive to set up, but there are also ongoing operating costs in ensuring that the information is provided in a consistent, accurate and up-to-date manner. Funding is often available for the capital costs of setting up a system, but less readily available for the costs of operating the system on a day-to-day basis.
- Set out how your service will integrate with other transport and support services (public, private, volunteer).
-  **Example:** The Austrian and Swedish demonstrations were designed to be a feeder service to and from main route rail and bus services. As the Austrian demonstration was not run by the main public transport operator in the area, it was not allowed to offer transport during the 30 minutes either side of the existing service on the same route. The reason was to avoid unnecessary competition.

The situation was similar in the Spanish demonstration; school services were not allowed to pick up the general public in towns where regular transport services with similar timetables were operating.



Be aware of: Integration with other services is very important because this makes the rural services part of the total public transport system. You must be aware of two important issues:

- ♦ Through ticketing may be very important in making the service easy to use. Examples of countries where this is common include Sweden, Denmark and Germany. Make sure that it is financially and technically possible to install the appropriate equipment for validating tickets and passes in all vehicles.
- ♦ Timetable integration is important to ensure that the rural transport can feed into the public transport system. It is important for the success of rural services that they make it easy to interchange with main public transport services.

➔ Establish your local marketing and promotion plan.



Example: The following methods were used to promote the Irish demonstration services: information posters in the areas served (in Irish and English as appropriate); information and timetable leaflets in the areas served (in Irish and English as appropriate); press releases to local newspapers, national Irish language TV station, community and local radio stations; parish newsletters (in Irish and English as appropriate); local newsletter in both Irish and English; web site, a seminar in April 2002; official launch and seminar in April 2003.



Be aware of: Marketing needs time and has to be a permanent process. It often takes time for the target group to get familiar with the new service (this is sometimes due to operating details such as trip-booking in the case of demand-responsive services.) and for general acceptance to grow. Marketing has to be focused on the target group of the service as well as lobby groups (e.g. policy makers and organisations which can promote the new service to the target group).

3. Framework for the evaluation

➔ Choose indicators (data to be collected) linked to your objectives.



Example: In the ARTS project we decided to concentrate on seven objectives. To be able to measure performance on each objective we selected a set of indicators for each one.

Objective 1: To improve the availability of transport services in rural areas

- ♦ Indicators for objective 1: frequency (runs per day), number of public transport services (bus, train, etc) between x and y per hour or per day (vehicles/route), route length (km), number of different public transport services available (services/day), usage (trips/day), and user satisfaction.

Objective 2: To improve access to essential facilities and services for rural inhabitants.

- ♦ Indicators for objective 2: local supply of goods (shops etc), distance to the nearest shop, and satisfaction of the users.

Objective 3: To improve physical access to transport services.

Objective 3a: Door-to-door.

- ♦ Indicators for objective 3a: average distance between the public transport stops, distance to the nearest bus/train stop, door-to-door service, and user satisfaction.

Objective 3b: Low floor vehicles.

- ♦ Indicators for objective 3b: number/percentage of buses equipped with low floors, assistance from driver, and user satisfaction.

Objective 4: To make more efficient use of existing transport services via integration with other services.

- ♦ Indicators for objective 4: interchange possibilities, organisational structure, user awareness and satisfaction levels.

Objective 5: To provide an improved level of services to users, based on high quality information.

- ♦ Indicators for objective 5: awareness levels among potential users, satisfaction of the users (number/percentage of requests/complaints), amount of information material, telephones per household, and computers per household.

Objective 6: To provide integrated services at a reasonable cost to users.

- ♦ Indicators for objective 6: categories of tickets available, trip fares, and user satisfaction.

Objective 7: To achieve cost effectiveness by the integration of public transport services.

- ♦ Indicators for objective 7: expenditure (initial investments, operating costs, etc.), income (revenues from ticket sales, subsidies, etc), costs per passenger and per kilometre, funding, and occupancy (number of passengers/vehicle), capacity (number of seats).



Be aware of: Keep things simple. It is better to have a few relevant indicators of good quality than lots of data which do not fit together.

- ➔ Choose methods for monitoring and evaluating the performance of your service and the time schedule for periodic evaluations. Decide which objectives/indicators you need to evaluate on a short term basis (e.g. monthly) and which to evaluate on a long term basis (e.g. annually).



Example: The task of the monitoring and evaluation is to measure the performance of the public transport service, to gain knowledge about success and failure and to be able to adapt and improve the service. Monitoring is on-going and should be considered as part of the implementation/operation process. Evaluation looks at the extent to which objectives have been met, as well as the financial performance of the scheme. It is important to compare the situation in the service area before and after the implementation of the new public transport measures. The information collected after the implementation of the service must therefore fit with the data collected in the initial evaluation. Indicators which measure and describe impacts on the objectives of your transport scheme must be tested. Design the surveys accordingly.

The following groups of stakeholders should be taken into account: Users, non-users, operators, public bodies and authorities, others. Each of these groups has to be questioned to find out how well their objectives were fulfilled by your service. You can use either qualitative or quantitative analyses, depending on the indicators and availability of data and information.

It is appropriate to perform quantitative analyses frequently (e.g. monthly). Quantitative data include transport data such as number of trips, vehicle kilometres, and number of bookings.

Since data collection for qualitative analyses demands a greater effort, it is appropriate to carry these out less frequently (e.g. twice a year). Qualitative data include satisfaction levels among users, operators and public agencies, and can be obtained through questionnaires, interviews, and focus groups.

Data collection conducted after the service has been implemented should aim to assess the extent to which the service is meeting the requirements identified earlier, to explore passenger attitudes and opinions regarding the service provided and to identify changes in travel behaviour.

For the Austrian demonstration, national statistics were the first source of information. More details were retrieved from a standard postal household survey, consisting of a household form (socio-demographic data) and personal trip diaries (transport data). Focus groups with all relevant stakeholders helped to design the measures. All this was done before the demonstration started. Specific surveys were scheduled during the operational phase: Each trip was described in detail on the booking forms, passengers were interviewed face-to-face, drivers and operators were also interviewed. The results were quantitative data on trip details etc. and qualitative data about performance, as perceived by the stakeholders.



Be aware of: Data should be collected before and after implementation of the new service in order to compare the two situations. Be sure that data are available before as well as after implementation, and that the size and composition of the survey samples are as consistent as possible in both survey periods. It is essential that a set of clear and realistic objectives are identified at the outset against which project success will be assessed.

Choose methods affordable for your budget. The time of year surveys are conducted may affect the results, and so may other external factors. Also be aware of the differences between before and after data if you are implementing a completely new service or improving an existing one.

- Perform a pre-study linked to your objectives, by collecting data for the chosen indicators. Start out from the initial evaluation and make necessary amendments.
- Set out mechanisms to encourage passenger feedback and involvement in your service.



Example: In the Swedish demonstration a focus group was held among rural residents. This enabled the municipality to collect ideas on how to improve the new service as regards time-tables, operating hours, information etc.

In the Austrian demonstration passengers commented freely to the drivers as they knew each other. Interviews with both groups showed that problems were also commented upon when the trip bookings were made.

In the Finnish demonstration the travel dispatch centre recorded all passenger comments, which were then forwarded to the technical section of the municipality.



Be aware of: Involve passengers and give them the impression that they can influence and improve services where necessary.

4. Conclusion of the pre-operational phase

- Summarise the results of the pre-operational phase. Are the initial structure and budget still adequate? Try to resolve problems. Consider going back to the design and planning phase (see section on "Suitable transport scheme") or to the beginning of the pre-operational phase. Proceed to the operational phase when you are satisfied.



Operational phase

1. Operation of the service

- Implement the service as designed in the pre-operational phase (plan of action).

2. Continuous monitoring

- Collect data for monitoring the performance of your service according to your indicators and evaluation plan.
- Carry out the short term evaluation (e.g. monthly) according to your evaluation plan.

👁 **Example:** The organisers of the new services should include in their evaluation plan some short term reporting at regular time intervals as the service progresses. These reports can include topics such as the problems encountered during the reporting period, the solutions that were implemented, measures that were decided, major changes in operating details (e.g. the dropping of a route). Passenger counts can also be included, as well as tracking of revenue and expenses together with any other quantitative indicators that are included in the evaluation plan.

The reports should help management detect trends which may become major problems later, to evaluate the effectiveness of the service, to achieve the objectives that were set and to aid the decision making process. User satisfaction should also be addressed in reporting, even in an informal way (without making use of on-board surveys, or detailed and long questionnaires). Try to make use of the passenger feedback mechanism. The driver is an invaluable source of passenger reaction and can help gauge the success of the service.

- Check if any new barriers occur during the operation and try to overcome them.

👁 **Example:** Various barriers may occur during the operational phase. These might include economic problems (due to instability in the funding once the start up finance has been spent); service planning problems, such as a fall in passenger numbers (e.g. if the service isn't meeting

the needs of the users); technical problems, such as vehicles not being appropriate for the roads or the roads not being suitable for the vehicles.

Also a wide variety of organisational barriers may arise in this phase. They mostly occur because of insufficient co-ordination among stakeholders, changing priorities for the transport service, changes in technical matters or issues related to the personnel.



Be aware of: Timely intervention to overcome barriers is essential in order to ensure uninterrupted operations. It is crucial to guarantee a continuation of the service (e.g. after initial subsidies have been spent). On the one hand, this may make it easier to convince possible financiers and on the other hand, it is important to avoid the negative effects on (potential) users if a service has to be suspended. Try to be as flexible as possible and be ready to make changes if necessary (e.g. timetable, information).

- Consider redefining your scheme by returning to the pre-operational phase or altering the service as necessary. Do not stop, you must have a "plan B".



Example: Even the best planner cannot anticipate the problems that will be encountered once the service is implemented. In the operating phase of a newly introduced rural transport scheme you will need a high degree of flexibility, and to have alternative plans available. On rare occasions some of the routes may be discontinued due to low numbers of passengers or other unexpected events. In the Spanish demonstration, a route started with only three seats available on the bus. After two months of operations two students started using the bus for their daily transportation to school. Thus only one seat remained free and the route was taken out of the scheme.




Be aware of: Check if the service is running in accord with its principal characteristics. Be prepared for trouble-shooting and implementing adaptations to the system even during the first days of operation, e.g. taxi drivers may have misunderstood the demand-responsive system and operate according to fixed routes or times. Poor control during the first days can mean that the system soon runs into financial trouble and an early termination.



Evaluation phase

This phase aims at evaluating your service on a long term basis (e.g. annually). In this phase you perform a more thorough evaluation than the continuous short term (e.g. monthly) evaluations.

- Feed results into the chosen evaluation method.
- Analyse the actual impacts of the service. Consider whether the service has met its objectives (see the examples in the appendix).

 **Example:** A range of methods may be used in order to assess whether a new transport service has been successful. These methods fall into two main categories: monetary and non-monetary methods.

Monetary methods may be applied when the impacts of a project can be expressed largely in monetary terms. Examples include cost benefit analysis (CBA) and cost effectiveness analysis (CEA).


Non-Monetary methods can be used when the majority of the impacts of the project cannot be expressed in monetary terms. Examples include multi-criteria analysis (MCA) to assess the merits of a project, and survey table methods such as goals achievement matrices (GAM) where a project can be evaluated in terms of how well it has achieved its pre-set objectives.

In the case of rural transport projects, where impacts are likely to be strongly related to "quality of life" issues, it is likely that non-monetary evaluation methods will be the most appropriate. It is possible, however, that financial assessment of the project will also be required in order to determine whether or not the service is cost effective. Bear in mind that an assessment of the cost effectiveness of rural transport should aim to incorporate social as well as financial factors.



Be aware of: Evaluate real behaviour. The person interviewed has to understand the options clearly. It does not make sense to ask if people would think that something might be useful.

- Evaluate procedures for overcoming barriers.

 **Example:** In the Swedish demonstration most of the actual users were older and/or disabled people. This is because many of the inhabitants thought that the service is not for everybody

but only for older or disabled people. In addition, many found it difficult to understand the timetable or were not at all aware of the service. To overcome these barriers new timetables were produced and tested on a reference group. People of various age groups are now illustrated on the front page and on the website of the service.



Be aware of: Identifying the causes of barriers, their context and the solutions required to overcome them, can help to carry out any necessary modifications and to overcome barriers in the future.

➤ Evaluate the socio-economic aspects of the project.



Example: Rural transport projects will have a series of direct and indirect economic impacts. Direct impacts might include, for example, the creation of new jobs for the drivers, scheme coordinators, etc, needed to operate the system. Indirect impacts might include the effect on local businesses as more elderly rural residents are able to travel to local shops, or as new services open up rural areas to tourists. Indirect impacts may also be negative, however; for example, local taxi companies may experience a fall in demand for their relatively expensive service as a result of a new demand-responsive transport service.



Be aware of: Try not to jeopardise the livelihood of local village shops and services by transporting residents out of rural areas. Ensure that new services provide trips to local centres as well as offering longer-distance trips to regional centres. Ensure that the new service is integrated and/or co-ordinated with the existing public transport network.

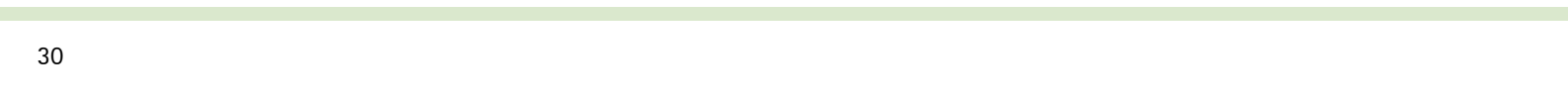
➤ Present the results and experiences to stakeholders. The results from the evaluation should be used to make operational improvements such as changes in timetable and in marketing material. The evaluation should improve, not close, the operation.



Example: In the Finnish demonstration the evaluation proved that the objectives were achieved, i.e. better transport services were provided without increasing the operational costs. Thus the services are continuing after the original two-year demonstration.

The success of the Spanish demonstration (opening school transport to the general public in villages without regular public transport) has made the Galician Transport Administration launch studies to analyse the possibility of implementing this transport scheme in other rural areas in the region. Other Spanish regions have also shown interest in the experiences from the Spanish demonstration.

Appendix



Checklist for transport service costs and revenues

Administrative costs

- Advertising & publicity
- Bank charges and interest
- Board expenses i.e. meetings
- Canteen & cleaning
- Computer maintenance & software
- Heat light & power
- Insurance
- Legal audit & consultancy
- Marketing & publicity
- Office supplies
- Pensions (employers only & fees only)
- Postage & courier
- Printing & stationery
- Promotions
- Publications & subscriptions
- Rates & service charges
- Recruitment
- Rent
- Rental, hire, lease of equipment.
- Repairs & maintenance
- Staff salaries and social costs
- Technical support / evaluation
- Telephone & fax
- Training
- Travel & subsistence - board
- Travel & subsistence - staff

Capital costs

- Fixtures & fittings
- IT – Hardware
- Office equipment & furniture
- Vehicles and on board equipment

Operating costs (below) and/or subcontracting costs after competitive bidding

- Drivers' wages
- Fuel and oil
- Leasing vehicles
- Maintenance and repairs
- Insurance
- Tyres
- Vehicle cleaning

Income

- Fares
- Grants
- Reimbursement of revenue foregone (concessionary travel schemes)
- Service contracts



Demosite Descriptions



Spain



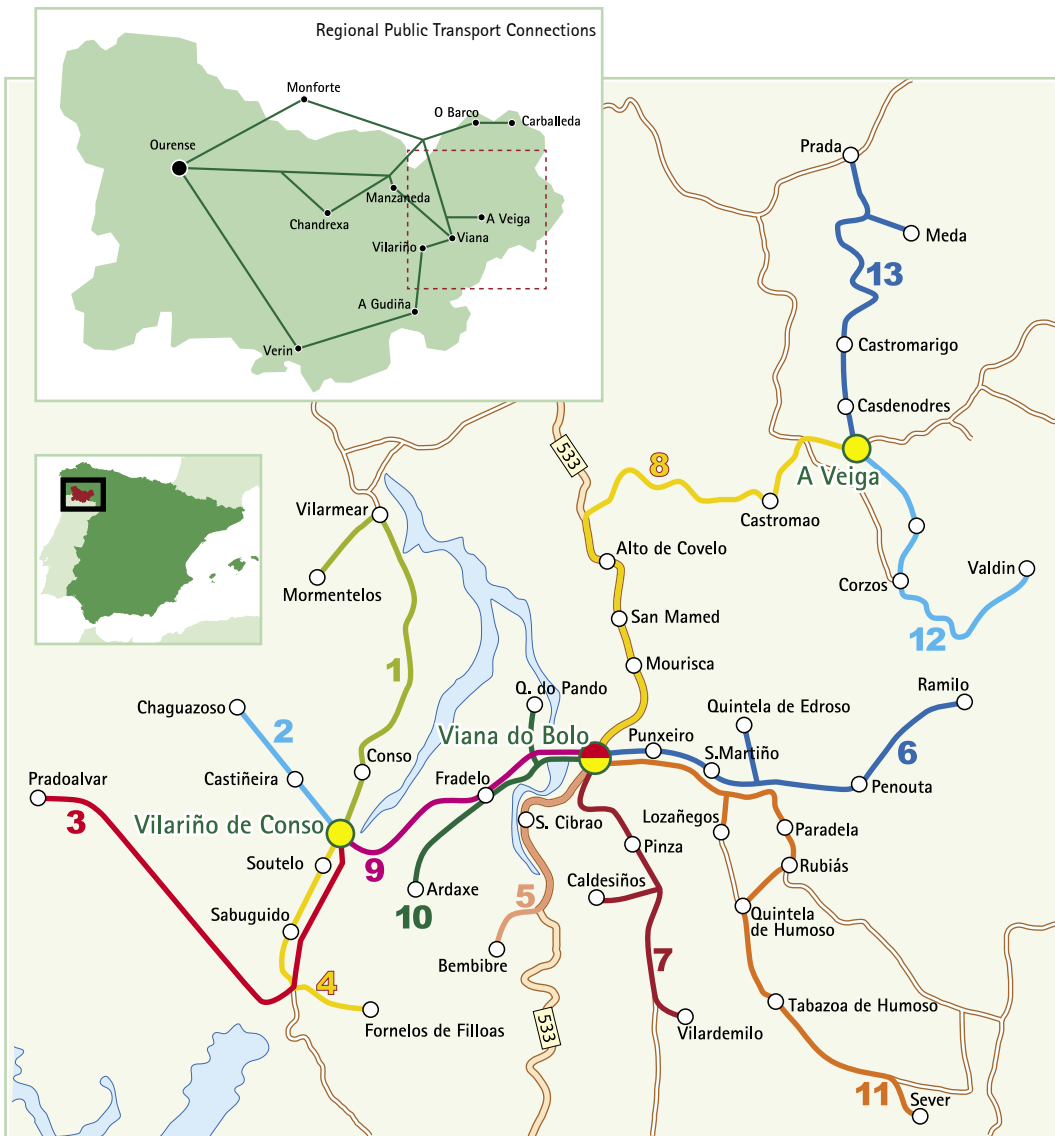
Ruto

Integration of School and Regular Transport in Rural Areas

RUTO took place in the region of Galicia, Spain, in three municipalities in the east of the province of Ourense, a very rural and sparsely populated area. It's 6,000 people live in 74 villages or hamlets, most of them with fewer than 50 inhabitants. More than half of the population is over 60 years old and schools are available only in the main towns. Nevertheless, school transport is well-funded by the state and contracted to local operators. In many cases school buses and mini-buses travel with a significant number of empty seats. Legal issues and lack of co-ordination between government departments (education and transport) mean that usually only students can use the school services. The RUTO

demonstration aims to integrate regular and school transport using under-utilised school bus capacity.

During the school year 2002-2003, 13 school services served stops in 36 villages, most of them without public transport. The services permitted all types of passengers to travel to the three main villages, arriving early in the morning and leaving in the afternoon, according to school timetables. Shopping or going to the bank, visiting the doctor, taking the bus to major towns outside the area or just spending the morning in the main village are activities that could be reached with these new services.



Ruto Data

- 13 Buslines
- 318 Total capacity
- 161 Students
- 157 Capacity for non students

Legend

- Primary School
- Primary and Secondary School
- Stop



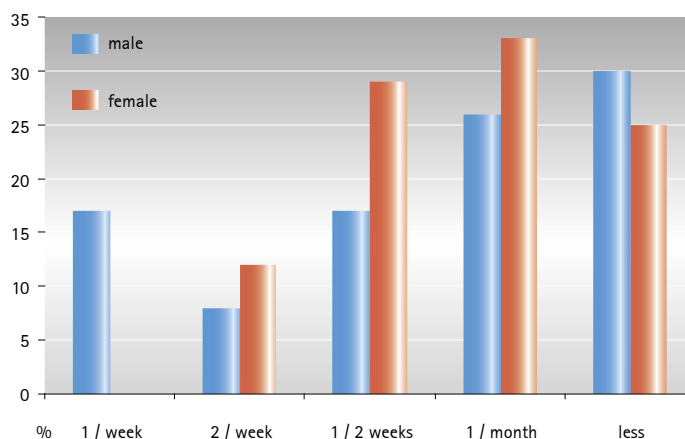
Servicio Provincial de Transportes de Ourense



Facts

Characterisation	Integration of school and regular transport
Area	852 km ²
Inhabitants living in the area	7400
Population Density	8.7 / km ²
Duration	6 months
Vehicles	10 minibuses, 1 minibus, 3 buses
Users of the services	5380 non-students passenger trips
Trips per day	8.9
Frequency of the service	Mon-Fri, twice a day

Trip Frequency



Lessons Learned

The RUTO experience has been considered a complete success, especially for the people living in the area. It was surprising how many elderly people were keen to use the service – almost 13% of the passengers were over 80 years old – and not only to go to the doctor or the bank. Residents travelled with RUTO on market days or to visit friends. Trips were made not only for a single purpose, but usually to accomplish a number of different tasks in the same morning.

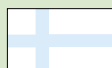
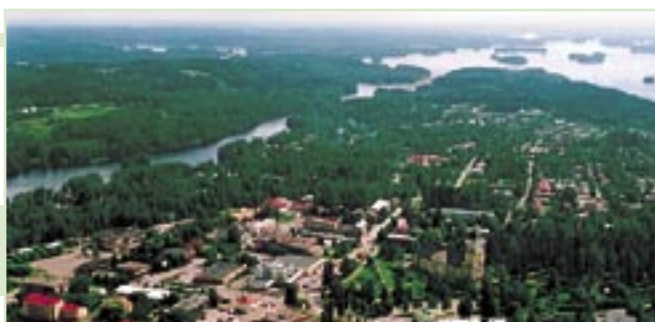
All passengers questioned in the user survey responded that RUTO had improved their level of mobility. The most frequent comment was that RUTO had made it easier for them to travel about. Previously they had had to rely on (very expensive) taxis or on family or neighbours. Middle-aged women and men over 65 confirmed that people were making more trips than previously. The presence of RUTO allowed more freedom and independence when it comes to deciding when to travel.

One interesting outcome that was not expected when setting objectives for the initiative was that some people used RUTO to go to work on their land. During the Spring some services showed a high increase in their passenger numbers; it was the time to prepare vineyards and some people were using RUTO almost every

day. This brought some difficulties because this people carried agricultural tools that could be dangerous for children. Drivers refused to put this material in the luggage compartment, arguing that this would make the school trip take too long.

After the initiative was launched some others problems became apparent. For example, the school timetable did not allow people to get to the health centre early enough for some kinds of clinical tests which need to be made first thing in the morning. Due to the delayed start of the initiative, it was not possible to amend the school timetable at the Upper Secondary School, which opens one hour earlier than the primary schools. Consequently, students at this school were not able to use the RUTO service. Our experience tells us that in rural areas with a lack of public transport it is necessary to undertake an audit of existing transport and facilities (e.g. health, retail, education) in seeking to achieve coordination.

Some protest arose from transport operators in the area. Specifically, taxis complained they had lost 50% of their passengers, but user surveys showed that RUTO passengers were using taxis to return home at midday. In any case it would be more worthwhile to try to involve all the transport operators in the same transport scheme. For example, taxis could run some kind of taxibus service, coordinated with those of the school transport. Particularly in areas with very low conventional transport services, all the resources should be combined to try to obtain a minimum level of access for all residents, without increasing the cost for administrations or area residents.



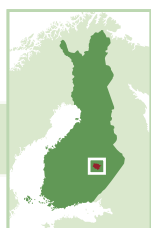
Finland

Leppävirta

Demand-responsive transport services

Leppävirta is a municipality in eastern Finland with 11,100 inhabitants. About 57% live in built-up areas and the rest in rural areas. Typical landscape consists of hilly forests and many lakes (25% of the total area).

The services run mainly twice per week between outlying areas and the centre of Leppävirta. The timetables are suitable for shopping or using other services in the centre. Some school transport and transport to elderly daytime activities is also provided. A minibus operates in the western parts of the municipality, with different timetables for school days and during school holidays. The services in the eastern parts, operated by taxis (minivans), run mainly during school holidays. The timetables allow door-to-door services and, when needed, the driver will help passengers to get in and out of the vehicle.

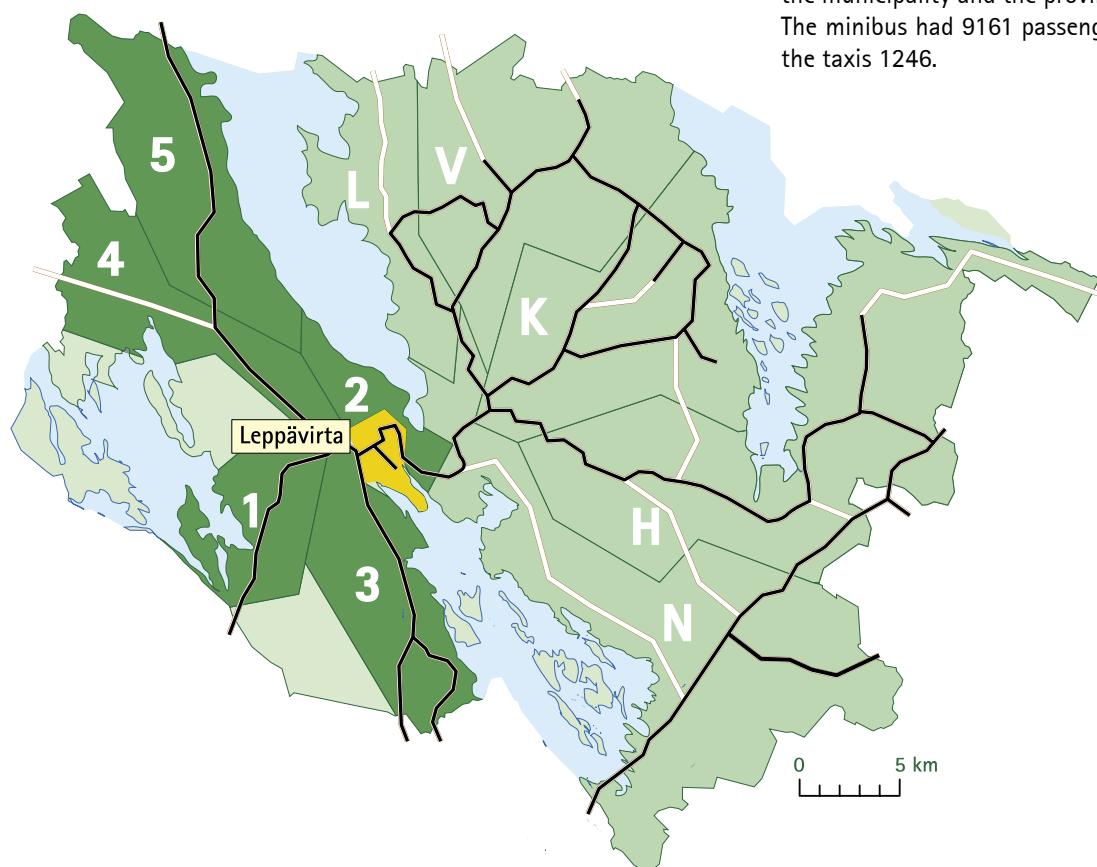


JP-T JP-Transplan Ltd.

Leppävirta Service Area

Instead of fixed routes, there are service areas. The route in each area depends on the pick-up addresses. Users call the Travel Dispatch Centre to make reservations. Customer lists are communicated to the drivers via an on-board data terminal or as GSM-faxes to communicators.

The demonstration was launched in June 2002. It is financed by the municipality and the provincial state office of Eastern Finland. The minibus had 9161 passengers during the first 12 months and the taxis 1246.



- L Länsi-Saamainen
- V Valkeämäki
- K Kurjala
- H Haapämäki
- N Niinimäki



- Centre of Leppävirta
- 1 Sorsakoski
 - 2 Särkiniemi-Leppäsalo
 - 3 Timola
 - 4 Kotalahti
 - 5 Paukarihti



Facts

Type of service.....	Demand-responsive transport
Area	1519 km ²
Inhabitants	11000
Population Density	7.3 / km ²
Duration of the demonstration	12 months
Vehicles	1 Minibus, 5 Taxi (van)
Users of the services.....	Minibus: 9161 passenger trips
Taxis	1246 passenger trips
Trips per day	Minibus: 36.6
Frequency of the service	
Minibus	Mon-Fri, two to three times a day
Taxis	once or twice a week

Lessons Learned

Characterisation of the area

The total area of Leppavirta is 1519 km² of which 380 km² consist of lakes with 2200 km of shorelines. The built-up area is only 8 km² and the rest is mainly hilly forests.

Minibus-Service

The average number of passengers per service was 4.4. For operational reasons the minibus set out from Leppavirta centre, travelled to a village and then returned to the centre. The minibus usually repeated this round trip after two hours. On the first run the minibus brought passengers to the centre and on the second run returned them to the village. Therefore the minibus was usually empty in one direction.

Of all passengers transported 33% paid the fare and 67% received the service without paying themselves (pupils, elderly and disabled people). School children formed the largest user group during the school year.

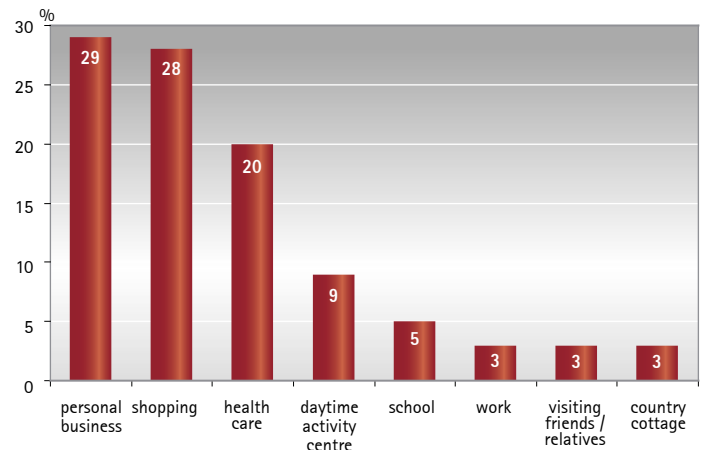
Taxi-Services

Taxi van services were offered during school holidays.

The average number of passengers per service was 7.9. Reasons, why this number is higher than for the minibus-service:

- » Taxi van services start their trip from a village and bring passengers to the centre and then after two hours return them to the village – therefore there are passengers on both directions.
- » Taxi van services are only provided when customers order them beforehand – therefore there exist no empty runs.

Trip Purpose



Most of the regular passengers used the new services to run errands or to go shopping in Leppavirta centre, only 3% used the services for visiting friends/relatives. Therefore trips mainly originated from the home addresses of the users and the destinations were in the centre of Leppavirta, and pick-ups for the return trips from the centre were most commonly booked close to shops. The rides from the remotest areas took sometimes more than 60 minutes.

In the passenger survey, 30% stated, that they would travel by car as a passenger, if this service did not exist; 15% stated, that they would not have been able to make the trip without the new services.

The passenger fare equalled a regular public transport ticket and included door-to-door services. Calls to the TDC could be made at the price of a local call.

Booking the rides and managing the bookings from TDC has in general been working well. However, since ordering a public-transport-ride is a new concept in most of the operating areas, calling the TDC caused some difficulties in the beginning, especially for older customers. Reluctance to using the TDC made some people to call the drivers directly. When both the TDC and the drivers receive calls, confusion may arise as to the availability of seats and more co-operation between the operators and the TDC is required.

The minibus driver estimated, that 30-40% of the customers needed assistance, for instance, to get into the vehicle.



Sweden



Gotland



Plustrafiken

Total co-ordination of Rural Transport Services

The Swedish demonstration takes place on the island of Gotland off the east coast of Sweden. The demonstration area covers the whole island (in total 31,500 inhabitants), except the city of Visby and the villages Hemse, Klintehamn and Roma.

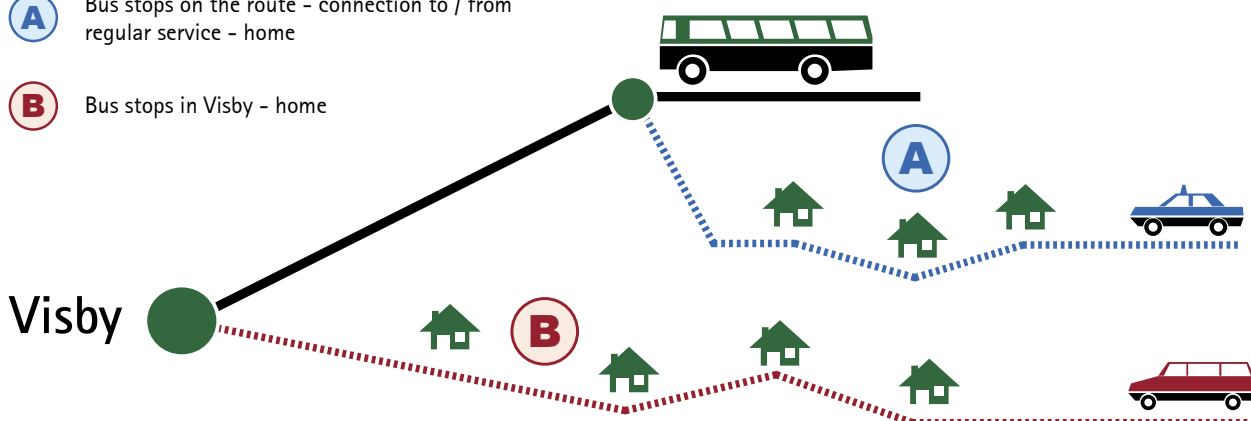
The objectives of the demonstration are to gather the administration and budget of all public funded services and on-demand services within the same committee in the municipality and to unify the transport rules / regulations for the different user groups (fares, operational hours, etc) to be able to provide a high quality public transport service in the rural areas.

The demonstration service is an on-demand service run by taxis or vans (8 passengers) and is also co-ordinated with the regular bus system. Plustrafiken takes passengers to the nearest village with a basic service, where they have the opportunity to change to the regular bus line going to Visby. The ARTS project financed daily departures in one district and one evening departure every Friday for young people in another. The remaining districts have two departures/week (100% increase compared to the former service). In total about 350 trips/month are made with Plustrafiken.

Multimodal System

Trivector Traffic AB

- (A)** Bus stops on the route - connection to / from regular service - home
- (B)** Bus stops in Visby - home

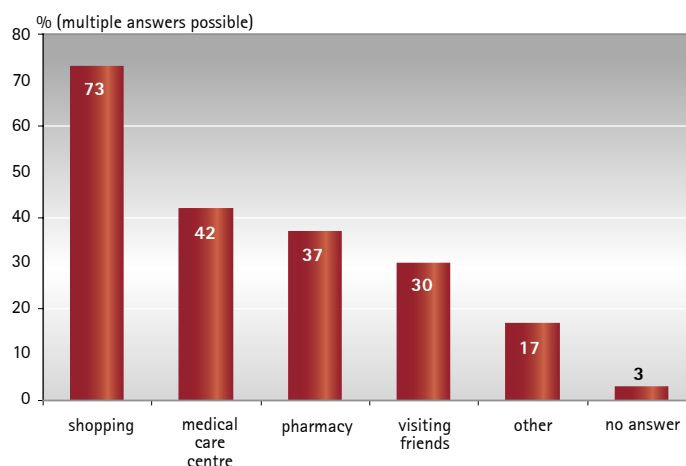




Facts

Characterisation	Demand responsive transport
Area	3100 km ²
Inhabitants	31500
Population density	10,2 / km ²
Duration of the demonstration	12 months
Vehicles	7 vans
Users of the services	3642 passenger trips
Frequency of the service	varying / area (1/day, 3/week, 2/week)

Reasons for travelling with Plustrafiken



Lessons Learned

The users were very satisfied with all aspects of the service (reliability, comfort, drivers, booking etc). The service has a substantial effect on individual access to services .Typical comments from passengers in response to the open question in the users questionnaire included: "I wouldn't be able to stay living in the rural area without Plustrafiken", "My family and I wouldn't have moved out from the village if we had known that Plustrafiken existed".

As regards improved access to services, it is clear that basic activities such as shopping and going to the pharmacy are the most common reasons for travelling with Plustrafiken. Most Plustrafiken users are elderly people. There are no significant differences in the number of trips per inhabitant between the areas with 2 departures/week and those with daily departures. Perhaps the user group which now exists does not need to travel to services every day.

The overall objectives for the municipality¹ have been achieved. However, the integration of already existing and sometimes parallel services (on-demand, elderly /disabled transport - Special Transport Service - and health transport) has not succeeded to the extent we had hoped. To enable co-ordination it is important that the operator for all the services be the same

(or that an alliance of small operators be formed) and that the TDC co-ordinates the trips in the booking procedure. These problems will be tackled in future competitive bidding . There is a chance that the price offered in the bidding will then drop (because of lower operating costs). The number of trips with the new service - Plustrafiken - has increased. The overall costs/trip in Plustrafiken has decreased. The service will continue and more services will be offered.

According to users and drivers, non-users have very little knowledge about the service. It is important to make residents aware of the service and that the service is for everyone, not only for the elderly and disabled. The Friday evening departure in one area has not been a success. Young people did not use the Plustrafiken for their evening trips. In this case, knowledge can be a problem. It is important to publish information about the evening service and that this be adapted to the target group .

The operators did not notice any important impacts on their business because of the Plustrafiken. The service is a very small part of their business. They improved the lack of co-ordination between Plustrafiken, elderly /disabled transport - Special Transport Service - and health transport.

¹ To gather the administration and budget of all services within the same committee in the municipality and to unify the transport rules/regulations for the different groups (fares, operating hours, etc) in order to provide a high quality public transport service for the inhabitants of the rural areas on Gotland.



Austria



Dorfmobil

Demand-responsive transport in a small municipality

In the Municipality of Klaus in Upper Austria local residents formed a non-profit association with the object of offering a door-to-door transport service for those who do not have access to a car, cannot drive or simply do not want to drive.

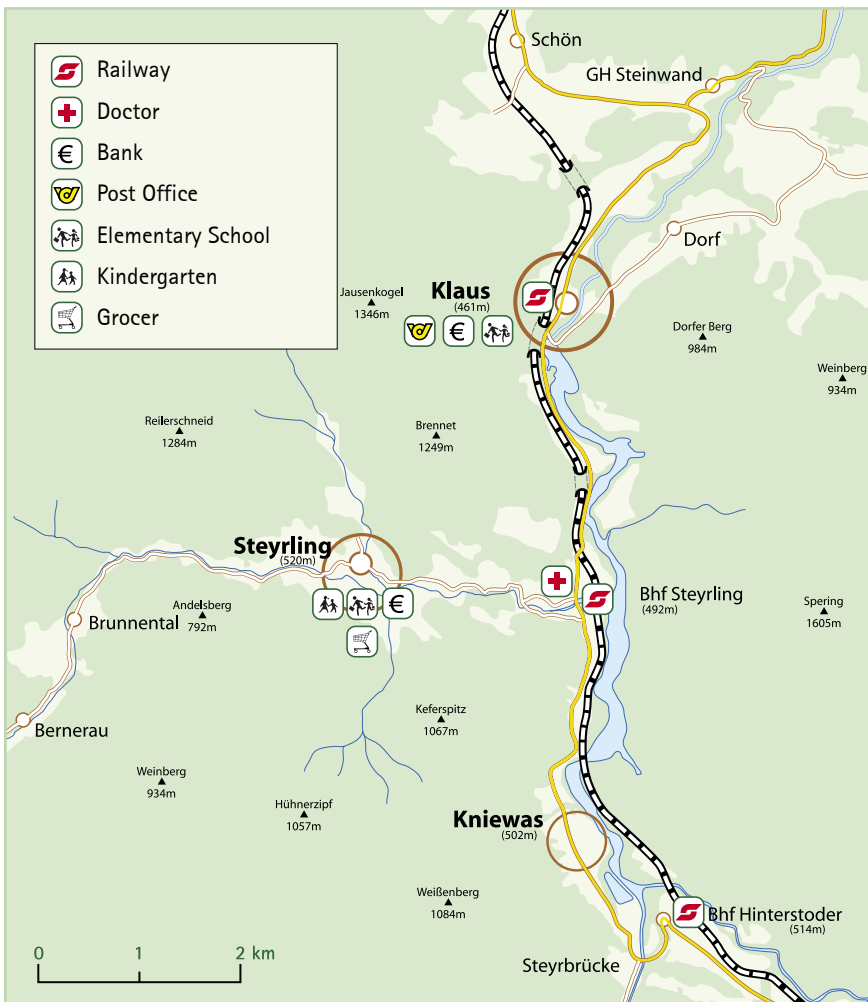
The Dorfmobil minivan operates Monday to Friday, between 6am and 7pm. For € 1.50 it takes passengers to the grocery store, the doctor's office, the bank, the train station etc. Anyone can call the Dorfmobil number, so long as they do so at least half an hour in advance, and ask for a ride from any destination in the municipality to another. The volunteer drivers carry a mobile phone which is handed over to the next driver. Also, the drivers organise shared transport when more than one passenger is bound for the same destination.

The 1200 residents and even tourists simply love this service. About ten trips per day are made. Access to services and the quality of life has been improved significantly for residents in this remote municipality.



BOKU University for
Bodenkultur


Klaus



Operation by private non-profit association

Booking by phone 30 min in advance

Compensation EURO 1,5 / h

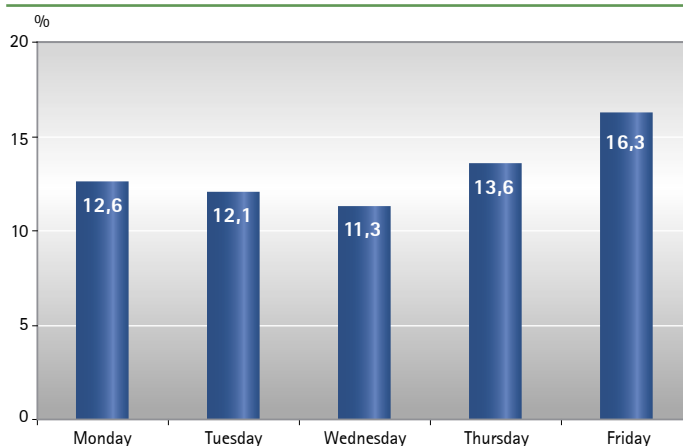
 Main Settlements in Operation Area



Facts

Type of service.....	Demand-responsive transport
Area	108 km ²
Inhabitants	1200
Population density	11,1 / km ²
Duration.....	12 months
Vehicles	1 van
Users of the services.....	3288 passenger trips
Trips per day	13.2
Frequency of the service.....	Mon-Fri; on demand

Average number of Passengers per Weekday



Lessons Learned

Characterisation of the area

The region is very mountainous and rich in forests. The population of the demonstration area is only 1200 people, living in three villages Klaus (460 inhabitants), Steyrling (700 inhabitants) and Kniewas (40 inhabitants). Due to the dispersed settlement structure people have to travel long distances of up to 8 km to reach basic supply or public transport stops.

During the first year the Dorfmobil covered a distance of 31583 km which means an average distance of 9,6 vehicle-km per passenger and 126,3 vehicle-km per day.

67% of the users are women, 31% live in a one-person household, 39% of the users are retired persons, 22% are students.

For people with no car availability the Dorfmobil is a service which helps them to organize their daily life autonomously and keep in contact with other citizens. In small villages the grocery is an important place to keep in touch with other residents. This is the reason why elderly people, especially, like to do their shopping themselves; the Dorfmobil is often used for shopping by these people. 41% of people aged older than 65 said that they have more social contacts since the Dorfmobil has been implemented.

Real results versus expected results

In the planning phase we did not expect so many passengers for the Dorfmobil.

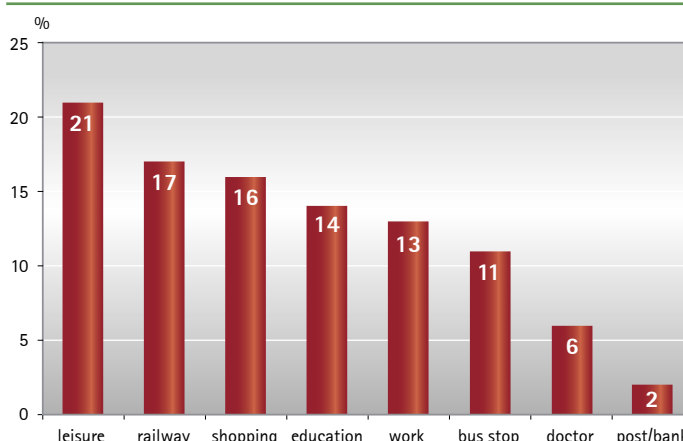
As we expected that the Dorfmobil would be mainly used by persons

having no access to a car for essential trips, we are surprised that the number of leisure trips is now so high.

In the planning phase we expected that volunteer drivers could lose their motivation and stop driving the Dorfmobil; but they are still highly motivated.

The results of this demonstration project are very positive, only the legal situation (licensing) could not be solved clearly because of the 'grey' zone in the legal framework. The demonstration phase ended on December 15th 2003, but the Dorfmobil is still operating – it became very important for the municipality and especially for persons having no access to a car.

Reasons for travelling with Dorfmobil





Ireland



Bealach

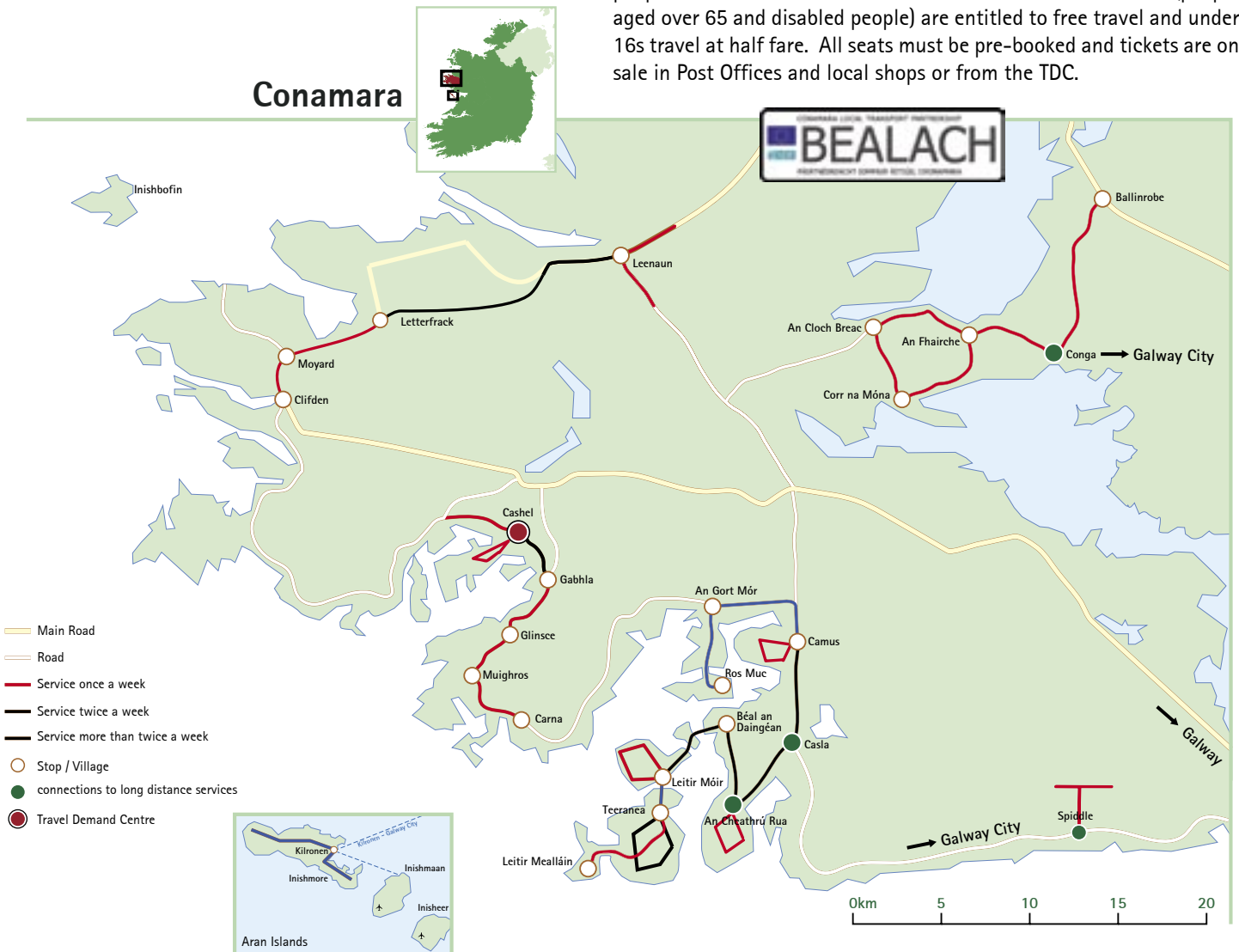
Co-ordination of new flexible local bus services

Taylor Lightfoot Transport Consultants

BEALACH is a network of flexible demand-responsive services, co-ordinated through a bilingual Travel Demand Centre (TDC), in Conamara, an agricultural area of small towns and communities within a landscape of hills and lakes. The area covered has an average population density of 8 inhabitants per km². It is one of 34 projects funded under the national Rural Transport Initiative.

Services are operated under contract by voluntary organisations and private operators in 6 areas and on 1 offshore island at a frequency of once or twice per week. The vehicles used are easy-access minibuses that follow a scheduled route but can deviate on request to provide a door to door service. Some routes include timed stops to interchange with regional bus services.

Reservations are made in advance by phone. The demonstration started in February 2003 and aims to connect people and places by improving access to local shops and facilities, limit the isolation of older people and provide mobility for people with disabilities, young people and people without a car. Holders of the national Free Travel Pass (people aged over 65 and disabled people) are entitled to free travel and under 16s travel at half fare. All seats must be pre-booked and tickets are on sale in Post Offices and local shops or from the TDC.





Facts

Type of service.....	Demand responsive transport
Area	1500 km ²
Inhabitants	12120
Population Density	8 / km ²
Duration of the demonstration	8 months
Vehicles	9 minibuses
Users of the services.....	2232 passenger trips
Frequency of the service.....	Once or twice a week

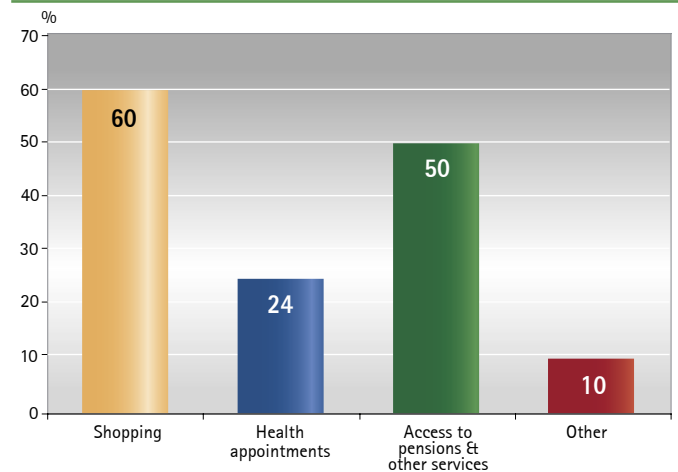
Lessons Learned

The implementation of innovative transport services in rural areas requires a considerable amount of planning and commitment from national, regional and local agencies over a long period of time. Pilot schemes need to be given time to see whether they are going to be successful. Success can not be measured purely in financial terms as such services are always likely to require some form of financial assistance to keep going.

The transport provided by Bealach assisted a number of people from the target groups served by local community development agencies to access local services and activities. Although some of the services were designed to connect with regional bus services, transport targeted at particular needy groups, e.g. youth or older people, is more effective than services linking in with public transport. There was, however, an impression among younger people that this service was not for them but for older people only. Some people had existing arrangements with family/neighbours, which they do not want to break, especially as the demonstration project was seen as a pilot scheme for a few months only.

What has worked well within this project is that all parties concerned are catered for, the local community, local bus operators and local businesses. None are losing out because the transport service is a very local service with local operators. Having to book in advance and having to go to the post office for a ticket, rather

Trip Purpose



than being able to buy a ticket on the bus, has been a barrier. This process was imposed as a result of the licensing exemption granted.

Introducing low cost, flexible demand-responsive services, which can be altered easily, can enable agencies to experiment with possible solutions and quite quickly ascertain which services are the most viable in terms of patronage. It is important to remember that the ability to provide a service to small numbers of people in low density rural areas is important as it enables people in such areas to retain their independence and to access local services and facilities without having to move to an urban location.

Continuous monitoring of such experimental services is required, as this enables the managing group to make informed decisions on changes in services or even their withdrawal. It is also important for the managing group to keep in ongoing contact with local communities and organisations so as to be able to respond effectively with new services to meet the needs which these groups identify.

The key improvements to be made are within the control of national Government and relate to the provision of a stable, long-term funding structure for rural transport services and a regulatory framework which includes the appropriate licensing for demand-responsive flexible transport services in rural areas. This should result in improvements to the services and the vehicles used, as operators would have a more stable environment in which to work.

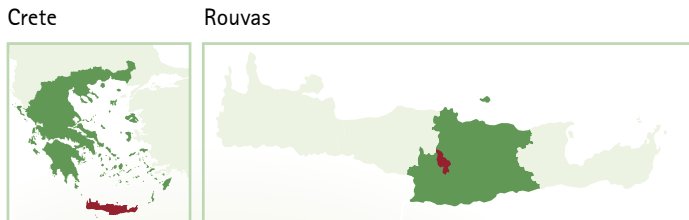


Greece



Messara

Total co-ordination of Rural Transport



The Municipality of Rouvas in the Messara Valley in Southern Crete decided to undertake student transport to the local elementary and secondary school in the main village of Gergeri. Until now parents had to drive their children to school or students had to use the regular bus service. The Municipality already owned a mini-bus that was used only occasionally for school trips or social events. Now the mini-bus has been put into full service following 2 different routes and a fixed timetable each weekday.

At the same time inhabitants living in outer settlements can use the empty seats for trips to the shops or to other services that are available only in Gergeri. The addition of a second destination, namely the health centre located in a town 15 kilometres away, was of great importance for the elderly population. Until now these people have had to rely on relatives or acquaintances taking them to visit to the doctor, since possession of a drivers licence is very rare for this age group in Greece.

The experience gained of operating combined school and passenger transport since the demonstration started in December 2002 will enable the Municipal Government to compete for and gain access to the state funding available for transport.

FORTH Foundation for research and technology Hellas



Routes

7:10	Gergeri - Metochia - Apomarma - Nivritos - Panasos - Gergeri
8:10	Gergeri - Metochia - Apomarma - Nivritos - Panasos - Aghia Varvara
11:00	Aghia Varvara - Panasos - Nivritos - Metochia - Apomarma - Gergeri
12:00	Gergeri - Metochia - Apomarma - Nivritos - Gergeri
13:30	Gergeri - Panasos - Nivritos - Metochia - Apomarma - Gergeri

Busses always stop at Gergeri

- Kindergarten
- Elementary School
- Lower Secondary School
- Grocer
- Seniors Day Care Centre
- Health Care
- Café
- Bank

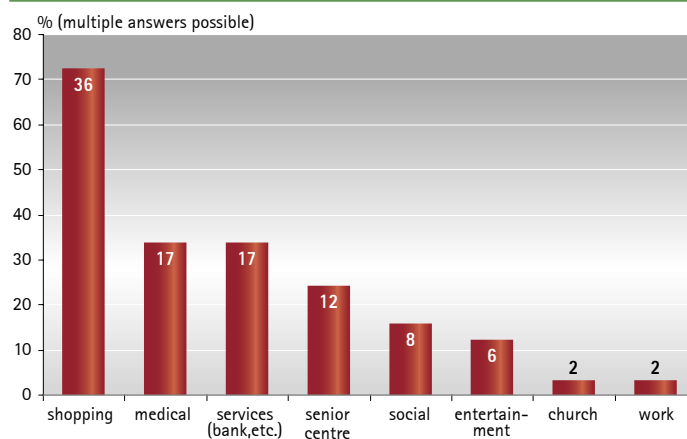
- Road
- Main Road
- Route
- Village / Stop
- Route Start / Stop



Facts

Characterisation	Integration of school and regular transport
Area	63 km ²
Inhabitants	2320
Population Density	36,9 / km ²
Duration	6 months
Vehicles	1 minibus
Users	2078 non-students / 8400 students
Trips per day	68,9 students / 16,4 non-students passenger trips
Frequency of service	Mon-Fri; two or three times a day

Trip Purpose



Lessons Learned

Characteristics of the area

The demonstration area is remote (as it is located at the northern end of Messara Valley) and is predominantly mountainous. The area is highly reliant on agriculture, olive and grape production and live stock rearing. The provision of local services is concentrated in Gergeri. More than 1 in 5 households is located 8 km or further from these essential local goods and services.

The term 'hitchhiking' is used in the sense that these respondents would see somebody they know, usually living in the same village, and ask for a ride.

Word of the mouth was the most common information channel about the demonstration. In a small rural municipality and especially in small villages it is no surprise that the users heard about the demonstration from a neighbour, friend or relative and that they conveyed the information in the same way to others.

Results of the demonstration:

- The municipality gained significant experience in the operation of transportation services
- Better use of existing under-utilised vehicles (minibuses)
- Public transport was made available to certain people within the municipality for the first time
- People were able to shop, pay bills, visit the doctor, visit friends/relatives and reach places of entertainment more frequently; the attendance at the Senior's Activity Centre increased
- Waiting for the bus to go to school in the morning was eliminated; teachers registered hardly any students arriving late; parents were relieved from daily commutes to school



Hungary



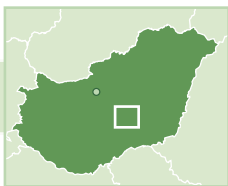
Development Improved School Transportation Service

Over the last few years, rural schools in Hungary have closed their doors and moved to larger population centres, thus forcing parents to drive their children to school twice a day. In families without a car, children aged 6–14 have to use public transport (bus, train) and endure long waiting times or transfers between two or more services. DEVELOPMENT, the ARTS demonstration, aims to address these problems in the Municipality of Kecskemét.

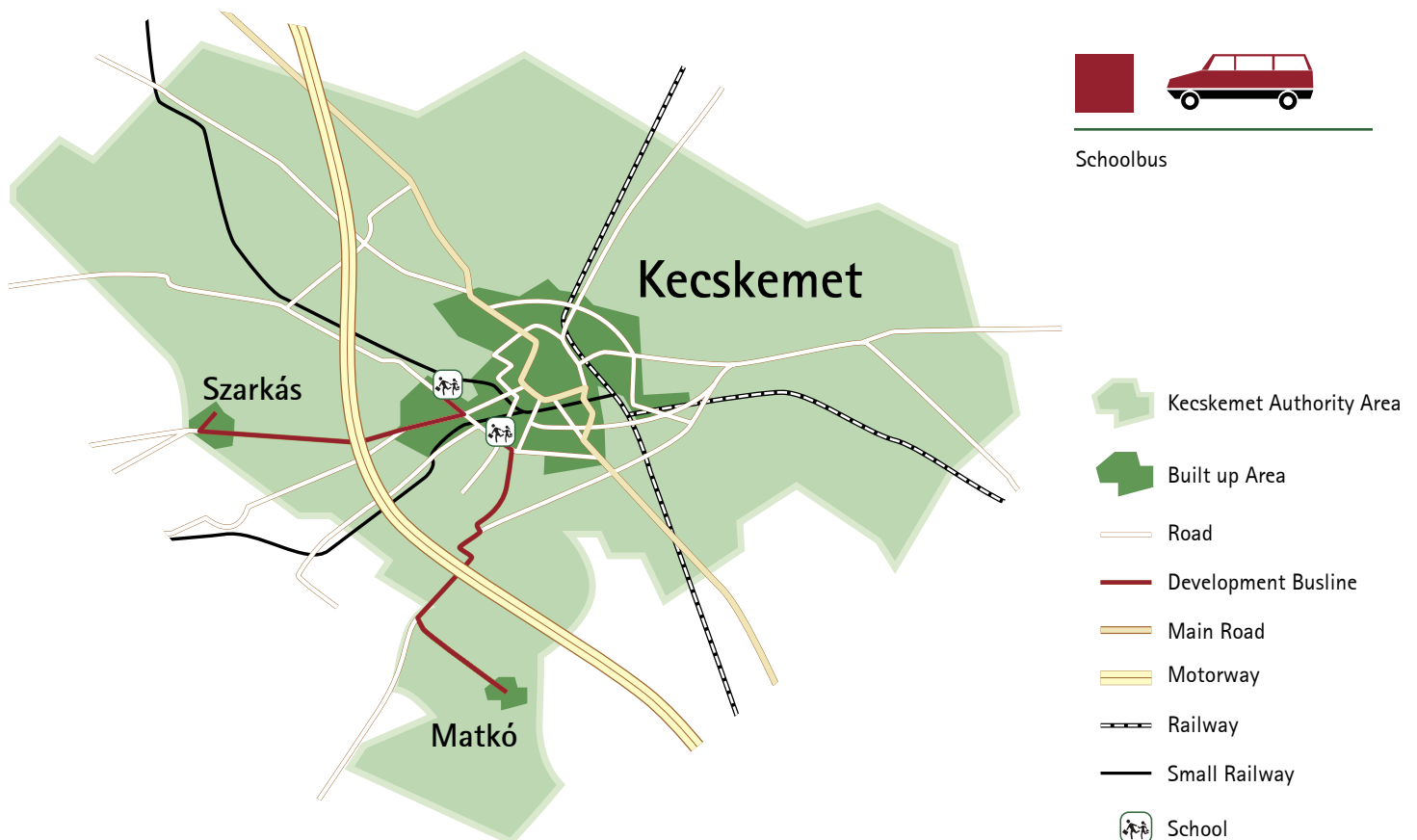
Each day 2 buses transport students living in the settlements of Matkópuszta and Szarkás to elementary schools in Kecskemét in the morning and return them in the afternoon. The local bus company Kunság Volán has been contracted for the service. A teacher accompanies the children on the bus.

In Hungary school transportation is funded at the municipal level. The demonstration started in September 2002 and has proved a great success both with parents and the students.

BUTE Budapest University of
Technology and Economics



Kecskemét





Facts

Characterisation	School transport to the centre
Area	85 km ²
Inhabitants	1800
Population density	21,2 /km ²
Duration	10 months
Vehicles	2 busses
Passenger trips:	28934 students / 2226 non-students
Trips per day	156 students / 2 non-students
Frequency of the service	Mon-Fri; twice a day

Lessons Learned

The transportation of pupils and students is still an unsolved and serious problem in Hungary, mainly in rural areas. Pupils attending school at a distance from their home are usually delivered to schools by regular public transport or by car if one is available. The demand for school bus services has arisen due to the closing of local schools.

In order to contribute to the development of school transport, two regular school buses have been implemented between Kecskemét and two nearby settlements, Matkó and Szarkás. This demonstration was called DEVELOPMENT which, hopefully, would provide an example for other municipalities in Hungary and help pupils and students from rural areas to get high-level education without moving to cities. School buses operated every school-day in the morning and in the afternoon with a fixed schedule. The average trip was 11-12 kms and took 15-20 minutes.

The demonstration was successful; the pupils, their parents and other passengers were satisfied with the service. On the Matko-Kecskemet route it was necessary to provide an accompanying teacher, because of the large number of children, and because there are no regular passengers on board.

The collaboration between stakeholders was effective, the municipality pays for the monthly tickets and Kunsag Volan operates the service. Users and parents were happy to be asked about their opinion and for suggestions. Other stakeholders were not very active, but this was predictable because of the nature of the demonstration.

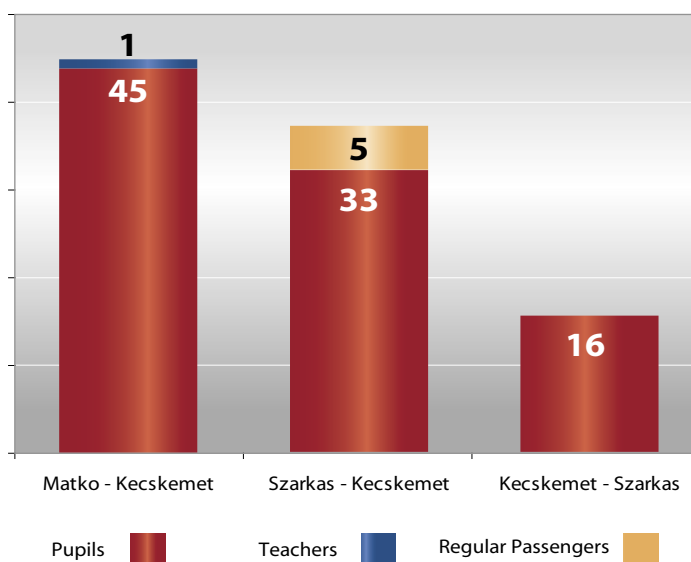
Users

Operational data are based on information from the operator (participants in ARTS project and school bus drivers), the accompanying teacher and personnel experience.

45 pupils and one teacher use Matko school bus every school-day. 33 at Matko 1. stop, 7 at Matko 2. stop and 5 at Matko 3. stop.

They all get off at Kecskemet („Halasi" primary school) stop. Calculating the sum of passengers in the morning and in the afternoon, we can state that on the Matko - Kecskemet - Matko route there are totally 90 pupils' trips and 2 teachers' trips every day.

33 pupils and five regular passengers use the Kecskemet-Szarkas school-bus to Kecskemet every morning and sixteen pupils from Kecskemet to Szarkas Gordon school. The total number of passengers is 110 pro day on this route.



There was no significant problem during the demonstration, due to careful planning and implementation. However, the lack of experience among all stakeholders – they had not participated in similar projects before – caused some problems during the implementation, they needed more help from the consultant (BUTE) than had been expected. We think that, in the longer term, the school bus services may help prevent the decrease in the population of small settlements.



Wales



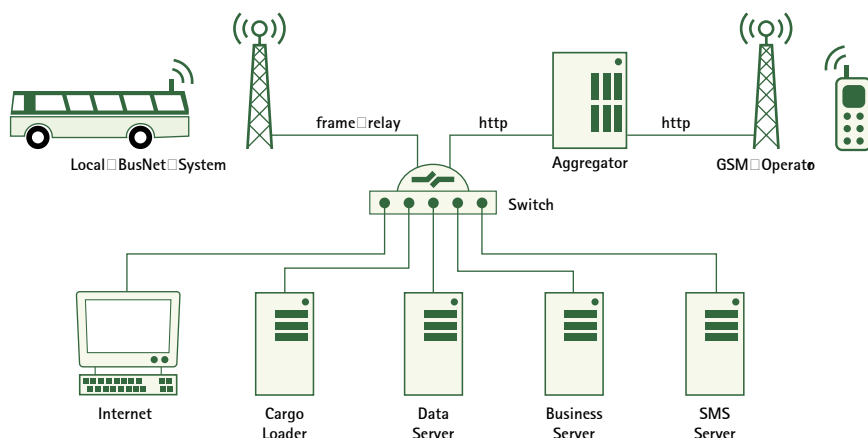
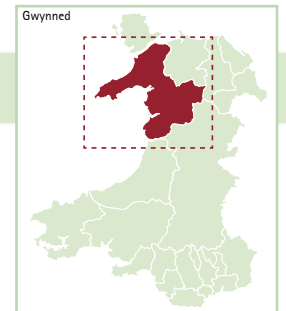
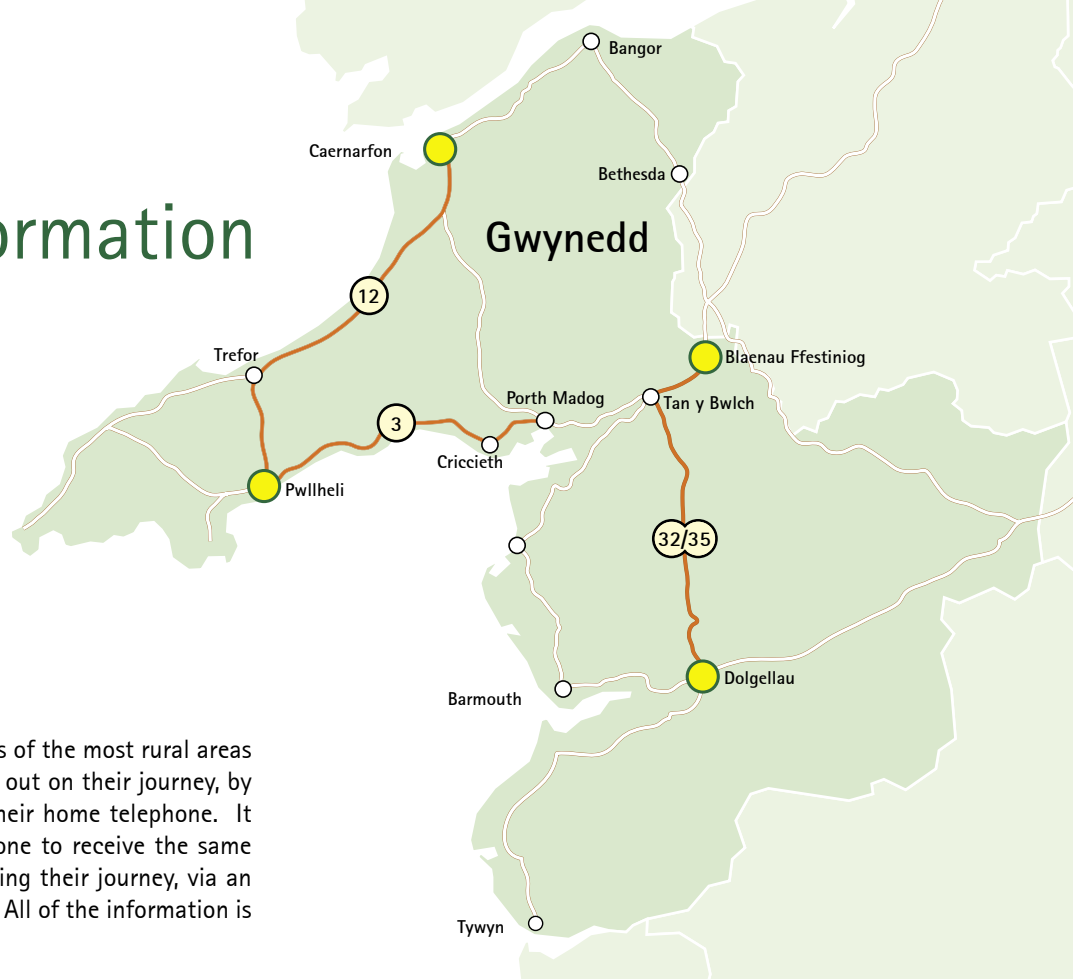
CYMRU

Real Time Information System

CYMRU - the Welsh demonstration - involved the application of innovative transport telematics to the rural environment. The scheme provided Real-Time Information (RTI) to residents in rural areas of Gwynedd in North Wales, via mobile telephones (SMS) and landline enquiry services.

The ARTS demonstration enabled residents of the most rural areas of Gwynedd to access RTI prior to setting out on their journey, by simply calling an enquiry number from their home telephone. It also enabled those with a mobile telephone to receive the same kind of information either prior to or during their journey, via an SMS message sent to their mobile phone. All of the information is available in Welsh and English.

The demonstration started in Summer 2003 and focussed on local bus routes, which operate daily and provide journeys for work, shopping and other local functions.





Facts

Type of service	Real-Time Information (RTI) System
Area of Gwynedd*	2548 km ²
Inhabitants of Gwynedd*	116800
Population Density*	45.8 / km ²
Duration	3 months
Routes	3 routes (Route 3, 12 and 32/35)
Methods of Providing RTI	Internet, Digital displays at bus stops, Landline telephone automated service

* These figures are for the whole of Gwynedd. It is estimated that a fifth of the area/population are able to benefit from the demonstration.

Welsh Demonstration Survey Results

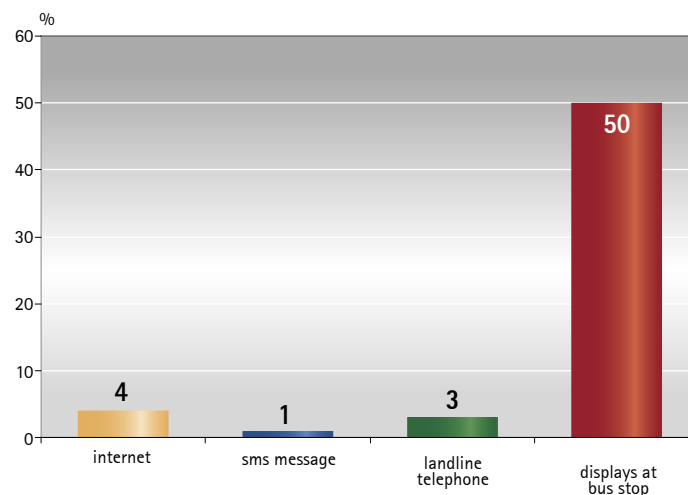
Surveys were conducted with bus users before the RTI system was implemented in Gwynedd and soon after the system became operational. The key results from the surveys were:

- The most common means of obtaining RTI was clearly via the at-stop digital displays, although the popularity of the SMS and landline enquiry services is expected to increase over time
- A higher proportion of after survey respondents than before survey respondents reported having used their mobile phone to obtain travel information (39% compared to 23%)
- A higher proportion of after survey respondents than before survey respondents indicated that they would consider using their mobile phone to obtain travel information (55% compared to 39%)
- Over half of all before and after survey respondents thought that the introduction of RTI would make them more confident in the reliability of the bus services in the demonstration area
- Over 50% all before and after survey respondents thought that the presence of RTI would make it easier for them to access goods and services in the demonstration area

Lessons Learned

One of the key lessons learnt from the CYMRU demonstration is not to underestimate the length of time that it takes to implement a new Real-Time Information system. Although the system implemented was an 'off-the-shelf' system, the implementation period was considerably longer than Gwynedd Council had anticipated. The implications for the implementation process of the requirement for a dual-language RTI system were not fully appreciated prior to commencement of the contract. If the system were to be implemented again, a full technical specification for the delivery of the dual language elements would be prepared. Due to the high cost of implementing an

Use of RTI sources



RTI system, it is desirable to make savings wherever possible, for example, by equipping the minimum number of buses with the on-vehicle kit required to operate the system. Experience during the CYMRU demonstration, however, highlighted the fact that it is important to equip as much of the fleet as possible with the necessary on-vehicle equipment to enable the system to operate with minimal interruption when vehicles have to be taken out of service for operational or maintenance reasons. The key lesson is that the full participation and co-operation of all bus operators in the area is essential to ensure the smooth operation of the system. Another important lesson learnt was that close liaison and consultation between different local authority departments is essential in order for the system to work effectively. This was highlighted when the Public Transport Planning Section split one of the demonstration bus services which effectively doubled the number of vehicles required to operate the service. The result was that not all vehicles which operated on this route had the necessary on-board equipment required to provide the requisite information for the Real-Time system. The lengthy implementation period had a knock-on effect in terms of promoting the system. Although it is highly desirable to promote a new RTI system as soon as possible to potential users, it is not advisable to publicise a system which is not providing accurate information on a consistent basis. As a result, it was necessary to have a low-key launch of the system early in the implementation process, with a full-scale re-launch once the system was fully operational. The CYMRU demonstration also highlighted the importance of allowing a period of full system operation before any 'after' evaluation of impacts is conducted. Due to the time constraints of the EU research project, it was necessary to assess the impacts of the system before any real impacts had occurred. The key lesson is to plan for a series of after-surveys, at various intervals after the system has been implemented, to enable the short, medium and longer term impacts of the measures to be evaluated.

About ARTS

ARTS (Action on the integration of Rural Transport Services) is a project within the fifth framework programme of the European Union – competitive and sustainable growth.

The main goal of the project ARTS was to test and demonstrate the effective provision of innovative transport services in the rural environment. The ARTS demonstrations were small scale realisations of rural transport systems that seem successful where regular transport service can not be financed. The demonstrations include a variety of transport types: on-demand rural transport systems, multi-purpose rural transport systems, taxi-based rural transport systems, transport systems operated by volunteers, passenger goods combinations and systems supported by applied transport telematics.

The systems were tested in typical rural areas in several European countries to ease transferability to other rural regions in Europe. The specific framework conditions, the identified barriers that may inhibit the development of such services and the possible ways to overcome these barriers was documented carefully.

The ARTS Consortium

PROJECT COORDINATION

ETT: Equipo de técnicos en Transporte y Territorio s.a (Spain)

PRINCIPAL CONTRACTORS

USC: University of Santiago de Compostela (Spain)

TTR: Transport & Travel Research Ltd (United Kingdom)

ILS: Institut für Landes- und Stadtentwicklungsforschung des Landes Nordrhein-Westfalen (Germany)

JP-T: JP-Transplan Ltd (Finland)

BOKU-ITS: University for Bodenkultur Vienna – Institute for Transport Studies (Austria)

TLTC: Bealtaine Limited Taylor Lightfoot Transport Consultants (Ireland)

FORTH: Foundation for research and technology Hellas (Greece)

TRIV: Trivector AB (Sweden)

ASSISTANTS TO CONTRACTORS

XUN: Xunta de Galicia. Consellería de Política Territorial, Obras Públicas y Vivienda. Dirección Xeral de Transportes (Spain)

BUTE: University of Budapest (Hungary)

SCT: Soluziona Consultoría y Tecnología, S.L. (Spain)

KUN: Kungsag Volan L.S (Hungary)

NAW: National Assembly for Wales (United Kingdom)

ISLH: Provincial State Office of Eastern Finland (Finland)

UG: Údarás na Gaeltachta (Ireland)

HER: Prefecture of Heraklio (Greece)

GOT: Gotlands Kommun (Sweden)

AMOR: Forschungsgesellschaft Mobilitaet FGM. Austrian Mobility Research, (Austria)

MAIN SUB-CONTRACTORS

IVV: Ingenieurgruppe IVV-Aachen (Germany)

ECORYS Transport (the Netherlands)

LV: Langzaam Verkeer VZW (Belgium)

CTA: The Community Transport Association (United Kingdom)

Information and contacts

For further information and contacts with partners please visit our homepage on Internet: www.rural-transport.net.

Improving transport systems in rural areas has proved to be essential, since it helps rural communities to increase their attractiveness to people living there and can be seen as an active policy for local development and social redistribution. The development of rural transport systems helps people living in rural areas to improve their quality of life, providing access to different activities for certain groups who are not able to take advantage of standard patterns of mobility – i.e. people without access to a private car (usually young people, students, people working in the home, and older and disabled people).

The ARTS handbook is the result of the work carried out in the European project ARTS, Actions on the integration of Rural Transport Services, and it aims to assist you in the planning, operation and evaluation of rural transport systems. Within the ARTS project, eight public transport schemes in rural areas in eight different European countries were tested and evaluated. Each of the demonstration projects included a range of measures. The Austrian, Irish, Finnish and Swedish demonstrations are all different types of demand-responsive services. The Hungarian, Greek and Spanish demonstrations are school transport integration services, with the Welsh being an information-based service.

At the end of the handbook you will find an appendix, containing a detailed description of the different demonstrations, as well as comments on what was learned from them.

The handbook gives you recommendations of a general nature, based on actual examples and conclusions from the ARTS demonstration projects, as well as from expert knowledge collected from the ARTS project members.

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