

**Deliverable 3 –
Demonstrations Design and Implementation
and
Case Descriptions**

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ACRONYM : ARTS

TITLE : Actions on the integration of Rural Transport Services

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Table of Contents

1. PREFACE.....	6
2. EXECUTIVE SUMMARY	8
3. STRUCTURE OF THIS REPORT	10
4. PRE-DESIGN PHASE	11
4.1. Introduction	11
4.2. Methodology of Pre-design Phase.....	12
4.2.1 Definition of objectives.....	12
4.2.2 Identification of stakeholders and stakeholders needs	14
4.2.3 Definition of measures to implement	15
4.2.4 Fine-tuning of the objectives and measures according to stakeholders needs	15
4.2.5 Impacts & Indicators	16
4.2.6 Sorting of objectives, measures, impacts and indicators	17
4.2.7 Common evaluation schedule	17
4.2.7.1 Evaluation phases	17
4.2.7.2 Scenarios	20
4.2.7.3 Evaluation methods	20
4.2.7.4 Data collection.....	21
4.2.7.5 Data collection strategies.....	21
4.2.7.6 Impacts, indicators and values.....	24
4.3. Pre-design Phase Results.....	30
4.3.1 Stakeholders.....	30
4.3.1.1 ARTS Stakeholder Group: Users	30
4.3.1.2 ARTS Stakeholder Group: Operators.....	31
4.3.1.3 ARTS Stakeholder Group: Public Bodies	31
4.3.1.4 ARTS Stakeholder Group: Others.....	31
4.3.2 Pre-design Phase: Objectives	34
4.3.2.1 ARTS: First Level Objective: Increase Economic Efficiency of Transport.....	34
4.3.2.2 ARTS: First Level Objective: Support Rural Development	42
4.3.3 Pre-design Phase: Expected Impacts	51
4.3.4 Pre-design Phase: Indicators	54
5. DESIGN PHASE GUIDELINES	63
5.1. Introduction	63
5.2. Common Issues	63
5.2.1 Operator Issues	65

5.2.2	On-demand service issues	65
5.2.3	Dispatching Centre Issues.....	66
5.2.4	Combined school - general public transportation issues.....	66
5.2.5	Combined social sector and/or health sector transport with general public and/or school transport issues.....	67
5.2.6	New hardware and software issues.....	67
5.2.7	Volunteer schemes issues.....	67
6.	IMPLEMENTATION PHASE – DEMONSTRATIONS DESCRIPTION	68
6.1.	Preface	68
6.2.	Introduction	68
6.3.	Description of demonstrations – Key characteristics	69
6.3.1	Demonstration Area.....	69
6.3.2	Characteristics of the demonstration area.....	69
6.3.3	Maps of the demonstration area.....	70
6.3.4	Service Characteristics	70
6.3.4.1	Service Area Map.....	70
6.3.4.2	Operational characteristics	71
6.3.4.3	Vehicle(s) in Use	71
6.3.4.4	Fares	71
6.3.5	Stakeholders.....	71
6.3.5.1	Operator(s)	71
6.3.5.2	Public Bodies.....	71
6.3.5.3	Others	72
6.3.6	Special Categories	72
6.3.6.1	School transportation.....	72
6.3.6.2	Social Sector transportation.....	72
6.3.6.3	On-demand services	73
6.3.6.4	Volunteer schemes	73
6.3.6.5	Technology.....	73
6.4.	Demonstration characteristics	74
6.4.1	Introduction	74
6.4.2	Geomorphology of demonstration areas	76
6.4.3	Socio – economic characteristics of demonstration areas	78
6.4.4	Road connections – PT system.....	80
6.4.5	Operational Characteristics	82
6.4.5.1	General characteristics	82
6.4.5.2	Service area and number of settlements	82
6.4.5.3	Number of routes and stops.....	83
6.4.5.4	Frequency of service	85
6.4.5.5	Operating hours	85
6.4.5.6	Vehicles.....	87
6.4.5.7	Operators	87

6.4.5.8	Fares	88
6.4.5.9	Feeder service.....	88
6.4.6	On-demand services	91
6.4.7	Users	95
6.4.8	Public bodies	98
6.4.9	School transportation.....	100
6.4.10	Volunteers.....	100
6.4.11	Information Technologies	100
6.5.	Conclusions	101

Table of tables

Table 1	WP4 Initial Timetable.....	6
Table 2	Demonstrations in operation (February 2003).....	7
Table 3	Data collection strategies per demonstration	Fehler! Textmarke nicht definiert.
Table 4	Four level objectives – overview.....	24
Table 5	Four level objectives – details	25
Table 6	Four level objectives – details (continued)	26
Table 7	“Must indicators”, which ought to be provided by most demonstrations.	27
Table 8	“Must indicators”, which ought to be provided by most demonstrations (continued 1)	28
Table 9	“Must indicators”, which ought to be provided by most demonstrations (continued 2)	29
Table 10	ARTS Stakeholder groups: Users, Operators.....	32
Table 11	ARTS Stakeholder groups: Public Bodies, Other groups.....	33
Table 12	ARTS Objectives: Increase Economic Efficiency of Transport and Rural Supply (per Stakeholder)	38
Table 13	ARTS Objectives: Increase Economic Efficiency of Transport and Achieve Rural Transport Efficiency at Minimum Cost (per Stakeholder).....	41
Table 14	ARTS Objectives: Support Rural Development and Increase Quality of Rural Life through Improved Availability of Transport Services and Better Travel Experience (per Stakeholder)	46
Table 15	ARTS Objectives: Support Rural Development and Increase Quality of Rural Life with Strengthening of Social Bonds (per Stakeholder)	48
Table 16	ARTS Objectives: Support Rural Development and Increase Quality of Rural Life by Improving Traffic Safety (per Stakeholder).....	49
Table 17	ARTS Objectives: Support Rural Development and Increase Quality of Rural Life by Supporting Local Businesses (per Stakeholder)	50
Table 18	ARTS Expected Impacts (per Stakeholder)	53
Table 19	ARTS Pre-design Phase Specific Demonstration Indicators: Users	57
Table 20	ARTS Pre-design Phase Specific Demonstration Indicators: Operators.....	59
Table 21	ARTS Pre-design Phase Specific Demonstration Indicators: Public Bodies	61
Table 22	ARTS Pre-design Phase Specific Demonstration Indicators: Others	62
Table 23	Demonstration Summaries	75
Table 24	Characteristics of Demonstration Areas	77
Table 25	Socio-economic characteristics of Demonstration areas.....	79
Table 26	State of PT network in Demonstration areas	81
Table 27	Demonstration route characteristics	84
Table 28	Demonstration service characteristics	86
Table 29	Demonstration operators and vehicles	89
Table 30	Demonstration operational characteristics.....	90
Table 31	Demand-responsive demonstrations characteristics	94
Table 32	Demonstrations user groups.....	96
Table 33	Demonstrations user groups.....	96
Table 34	Demonstrations special characteristics	97
Table 35	Demonstrations Public Bodies involved.....	99
Table 36	Summary of Demonstration Measures	103
Table 37	ARTS General Objectives.....	104

1. Preface

This report covers the progress of work carried out in Work Package 4 (WP4) of ARTS. As described in the Technical Annex WP4 is the phase of the project where:

- Frameworks for the definition, scope and evaluation of the demonstrations are developed
- The specific steps needed to make the demonstrations fully operative are prepared and designed
- The demonstrations run
- The final report on the implementation and results the demonstrations is prepared

For various reasons it was not possible for all demonstrations to start at the same time, therefore the timetable of WP4 changed a number of times. In the second General Meeting, held in Crete in July of 2002, it was decided to set the month of October 2002 as demonstration starting date. This decision was taken because at the time two demonstrations were already in operation, while three more were connected with school transport.

It was not, however, possible to meet this schedule and only one additional demonstration started in September 2002. By the end of 2002 two more demonstrations had been launched.

The rest of the demonstrations started operating in 2003, with the last reached operational status in February of 2003.

These developments have made necessary the re-scheduling of WP4, the re-definition of its sub-tasks and the progress covered in this report.

Table 1: WP4 Initial Timetable

WP4 Activity	Duration
Activity 4.1 Pre-design Phase	7- 8 / 2002
Activity 4.2 Design Phase Guidelines	9/2002
Activity 4.3 Implementation Process	10/2002 – 7/2003 (Some demonstrations started before 9/2002)
Activity 4.4 Reporting Phase	8 –9 /2003

Table 1 WP4 Initial Timetable

This report covers Activities 4.1, 4.2 and a description of the demonstration actions as implemented at the start of Activity 4.3. Furthermore, it reports on the progress of the demonstrations from the start of WP4 (July 2002) until February 2003.

The following demonstrations were operating at the end of February 2003:

Table 2: Demonstrations in operation (February 2003)

Country	Demonstration Name	Starting Date
Austria	ALMA	December 15, 2002
Finland	LEPPÄVIRTA	June 3, 2002
Greece	MESSARA	December 16, 2002
Hungary	DEVELOPMENT	September 2, 2003
Ireland	BEALACH	February 10, 2003
Spain	RUTO	January 8, 2003
Sweden	SAMKOM	August 19, 2002
U.K.	CYMRU	January 31, 2003

Table 2 Demonstrations in operation (February 2003)

The results of Activity 4.1 Pre-design Phase were used as the basis for the definition of the evaluation framework that is part of Work Package 5. This evaluation framework that is part of WP5 was prepared by ARTS partner BOKU.

The Pre-Design phase connects WP4 with WP3 and its focus is the implementation of MAESTRO methodology in ARTS. The MAESTRO methodology was developed for the selection and implementation of demonstration actions in Transportation. In WP4 it provided guidance for the construction of a hierarchical framework for the objectives of the demonstrations. The objectives of each action were developed after consultation with the stakeholders at each demonstration site. As a result objectives were tailored to each user group. In other words, it was ensured that the ARTS demonstrations would cover the needs and meet the expectations of the people that will use them. A set of measures to be implemented in order to achieve the specific demonstration objectives was decided and the expected impacts of these actions were set out. In order to assess the impacts of the measures, indicators were assigned and an evaluation framework was constructed. Indicators are divided in two categories: (a) "must" indicators for which all demonstrations will provide values and (b) specific demonstration indicators that will measure unique characteristics as they occur.

In the Design Phase, practical measures concerning the day-to-day operations of the demonstrations were subjected to the guidelines that are presented in this document.

The National Partner Responsible for each demonstration action prepared a detailed report describing the demonstration characteristics together with information about the location and operational details of the services to be implemented.

The demonstrations in ARTS are real-life situations and problems are constantly subject to problems since the day they commenced. The operators are challenged to make the necessary changes to keep the demonstrations alive and at the same time to adhere to the objectives of the project. All events and important developments in the lifetime of demonstrations are presented in the Demonstration Progress Report that is part of this Deliverable.

2. Executive Summary

ARTS is a project that attempts to demonstrate that public transport services are not only viable in rural areas but they can enhance the quality of life and improve the mobility of residents.

The demonstrations are taking place in eight European countries; Austria, Finland, Greece, Hungary, Ireland, Spain, Sweden and the U.K. The measures exhibit a considerable degree of similarity but there are also many dissimilarities. Local conditions vary significantly in rural areas across Europe and this fact is reflected in the organisation of services. Furthermore demonstrations are interconnected with transportation services offered by the educational and social services sectors at the local and regional level, which also differ between European countries.

The actions extend over 6 to 12 months of ARTS and as a general rule were launched during the first year or the start of the second year of the project. A common starting date was not feasible due to a variety of reasons: natural disaster, delay of funding, political considerations or disagreements.

Each demonstration was thoroughly designed and prepared so as to achieve two objectives:

- To address the needs of the users and all stakeholders
- To establish an evaluation framework for the demonstrations

Following a “users-first” approach, the stakeholders of the demonstrations were identified very early in the Pre-design Phase, the first stage of Work Package 4. The needs and the expectations of the stakeholders were identified after extensive consultations with demonstration organisers.

The evaluation of the demonstrations is not a simple comparison across common characteristics; it aims to assess the difference that each stakeholder will experience after demonstrations start by comparing the “before” and “after” situation. Critical in the construction of the evaluation framework was the adoption of the MAESTRO methodology. MAESTRO was developed as a tool for the selection and evaluation of demonstration projects in Transportation.

In ARTS the Maestro methodology was expanded so as to conform to the user-focused approach being followed. For each stakeholder group the objectives of the demonstrations were formulated from the highest (European policy) level to the lowest (local level). Four distinct levels of objectives were identified for each demonstration as well as the measures needed to achieve the fourth level, ie. the specific demonstration objective. At this point demonstrations had to state the anticipated impacts of these measures on the stakeholders and to assign qualitative or quantitative indicators to these impacts. Finally a set of “must” indicators, which all demonstrations need to complete, was set out in addition to the indicators proposed individually. The construction of the evaluation framework was a common activity shared between Work Package 4 and Work Package 5.

The Pre-design Phase was followed by the Design Phase, the stage of the project devoted to preparing the operation of services. All details concerning the daily provision of services, from hiring of drivers to printing of tickets were smoothed and problems were solved.

The implementation phase of ARTS starts with the launching of individual demonstrations. This document describes the state of the demonstrations at the very first day of operations.

The main stakeholder groups that were recognised are: the users, the operators and the Public Bodies. Users, in turn are divided into regular users and special groups as the elderly or the students. Regular users are transported in all demonstrations while special groups are not

represented equally. In most cases operators are private companies with the exception of one demonstration that it is being operated by the Municipality and another one being run by volunteers.

There is a major distinction between demonstrations offering on-demand services and those operating along fixed-routes. One action demonstrates the convenience of a Real-time Travel Information System accessible via both land-line and mobile phone. Three demonstrations are based on school transportation, and all three combine students with regular passengers at the same time.

ARTS has already had considerable impact on some areas and group of users; villages with no public transport up until now received services for the first time; students are able to go to school on a dedicated bus instead of waiting at stops for regular buses. Elsewhere, the focus is on proving that existing services can be offered at less cost than before with better co-ordination and when different authorities co-operate.

A few innovative ideas have been tested and proven successful: a special Friday night service from a village to the regional centre provides transportation for young people in Sweden. Technology is not a prominent feature of ARTS; only one demonstration is based exclusively on the use of a computerised Real-time Travel Information system.

Perhaps the most important aspect of ARTS is the experience that will be gained of practical solutions to a wide variety of problems ranging from the day-to-day operation of services to obtaining political consensus within the local government bodies responsible for rural transportation issues. These practical lessons can be transferred to other rural areas within the same country or even across Europe. It is hoped that solutions tested and proven in ARTS will play a significant role in increasing the mobility of residents and in enhancing the quality of life in rural areas.

3. Structure of this Report

This report consists of the following sections:

1. Pre-design Phase
2. Design Phase Guidelines
3. Description of the Demonstrations
4. Demonstration Progress Report up to February 2003
5. Annex

The Pre-design Phase starts with the Methodology that was followed in order to identify the stakeholders, objectives, measures, expected impacts and indicators for each demonstration. The next section describes the process of information collection the information and its compilation into a comprehensive framework for all demonstrations in ARTS. Finally the results are presented in the Conclusions section.

The Guidelines for the Design Phase were issued by WP4 partner FORTH and were aimed at helping prepare the demonstrations at a practical level.

The Description of the Demonstrations consists of the presentation of information collected at each demo site and the comparison of the characteristics of all demonstrations.

All the important events in the course of demonstrations from the day they started until February 2003 are included in Demonstration Progress Report, along with significant delays, problems encountered and solutions reached.

The Annex contains the national Reports on the Description of each Demonstration Action.

4. Pre-design Phase

4.1. Introduction

At the Pre-design phase of ARTS a selection of the demonstration elements is provided. An important task of the project is the evaluation of the impacts of the Demonstrations.

The MAESTRO methodology was developed as an aid for the selection and evaluation of Demonstration projects in Transportation. The process involves the identification of the objectives of the demonstration actions at four levels of details.

ARTS demonstrations are not experiments in a laboratory nor computer simulations, they are solutions that will be used in real life and real people who will benefit from the services. They cannot, therefore, be considered in isolation from their users. An important task in the Pre-design Phase is to identify all stakeholders of the demonstrations and ensure that their needs are met.

Having recognised each stakeholder's objectives for the demonstration, the next step is to develop the specific measures that will be undertaken. It is expected that these measures will have certain impacts when the demonstrations conclude.

The complete set of stakeholders, objectives, measures and impacts is the base on which the evaluation framework is constructed. The impacts of the demonstrations are evaluated on two stages: "before" and "after" implementation. The "before" evaluation is performed at the conclusion of the Pre-design Phase.

This module consists of the following tasks:

1. Definition of objectives
2. Identification of stakeholders and stakeholders' needs
3. Definition of measures to implement
4. Fine-tuning of the objectives and the measures according to stakeholders needs
5. Impacts & Indicators
6. Sorting of objectives, measures, impacts and indicators
7. Definition of the evaluation procedures to be adopted in ARTS

Tasks 6 and 7 were prepared by BOKU the partner responsible for WP5.

For each the tasks numbered 1 to 5 data were collected from all demonstrations and the results are presented in a concise form in Sections 4.3.1 to 4.3.4 of this report.

4.2. Methodology of Pre-design Phase

4.2.1 Definition of objectives

Having a set of clearly defined objectives is the cornerstone of ARTS. Setting the objectives is a dynamic process that involves the constant development and refinement of the goals that have been identified at previous stages.

There is a hierarchy of objectives: higher-level objectives may not change and in fact should not be modified; lower level objectives may change because a new need may emerge as a result of meetings with user groups. Even after the demonstrations have moved into the implementation phase an unforeseeable obstacle may force a change in the objectives.

Having a list of updated and current goals is very important since specific actions for the implementation of the demonstrations have to be undertaken and evaluation indicators selected based on these objectives.

The general objectives of ARTS have been stated in the Technical Annex:

- Voluntary initiatives
- Physical Accessibility
- Telematics
- Well-integrated network and services
- Intermodality
- Accessibility to centres of social activity
- Accessibility to shopping and health services
- Tourism
- Rehabilitation of close – down (rail) services
- Delivery of goods
- Other (if relevant for case definition)

These can be considered as the “themes” of ARTS and all demonstrations address at least some of them. In this regard, this list provides a starting point for the definition of the objectives of each individual demonstration.

This general framework gives an overview of the EC recommendations and of the scope of the project. The demonstrations cover different areas and they have also different objectives to a certain extent. In order to evaluate the impacts of the demonstrations these objectives must be elaborated for each site and to a common basis for evaluation must be established.

The MAESTRO methodology is a significant tool that has been developed for the selection and evaluation of demonstration actions in transport. It adopts a top-down approach from the policy objectives of Transport in Europe to the individual demonstrations in each country. For the purposes of ARTS the MAESTRO methodology, adapted to the specific conditions of the ARTS project, was followed.

The following excerpt is taken from the MAESTRO Guidelines:

1. Transport objectives. These highest-level objectives, outlined in the Common Transport Policy, are common to all transport sectors. They can be clustered in three broad classes of objectives: economic efficiency, environmental protection and regional development.

2. Sector objectives. Second-level objectives are pursued in all projects in the selected sector. They refer to a single transport sector and are independent from a particular innovative application or a particular site application. The P/D projects developed within the seven transport sectors fall within one or more of these objectives. Although the contribution of a pilot project to such general objectives is often negligible, these objectives are so important that they must be considered. The P/D project should give feedback on the extent to which the full implementation of the project will contribute to achieving these objectives.

3. Area objectives. Third-level objectives are common to all the projects developed under one area of major policy interest within each sector. It was not possible in some areas to define objectives which were common to all applications of that area. Both second-level and third-level objectives cannot, however, be completely missing in the same sector. MAESTRO has selected a list of third-level objectives, classified by the areas of major policy interest, for each of the transport sectors. They are classified according to transport sectors and areas of major policy interest.

Areas of major policy interest are specific issues, problems and services within transport sectors, in which innovations (transport concepts, measures, system, service or a combination of these) are involved or needed. They are areas of work in which projects, aimed at solving specific issues and problems of the transport sector, take place. They concentrate most funding and research in the sector. The areas cluster common problems and interests and are useful in identifying P/D project objectives.

4. Application or P/D evaluation objectives. Fourth-level objectives are closely associated with the specific field trial or test site.

Your P/D project's specific objectives must be determined at each of these levels. During this activity, keep in mind that objectives at the first level are so general that any transport-related project should fulfil all of them. A screening process is therefore needed. The user is helped in this screening by choosing the second-level objectives related to the transport sector in question and the third-level objectives associated with the area of major policy interest. The choice of the project-related fourth-level objectives can be helped by considering the question 'What do the stakeholders expect from the project?'

Initially it may appear that the MAESTRO classification scheme is too broad. We suggest a practical approach that, if followed, will help organise the goals of each demo site. For example ARTS is a Road Sector project that mainly addresses the economic efficiency of transportation (Level 1 Objective), but one can also argue that rural transportation is a sector by itself.

Examples of second level objectives are: to facilitate the integration of networks, to maintain and increase mobility, to enhance the quality of life, to support local and regional development.

One problem with identifying third level objectives is that there are not specific policies for this area, i.e. rural transport. It is proposed that the categories and classes of barriers identified in the barrier matrix of WP3 at the national level will be used for the identification of Level 3 objectives.

Fourth level objectives are the specific measures adopted in each demonstration. A first approach is to provide a list of the measures that are the logical consequences of the Level 3 objectives. Level 4 objectives should be completed and refined after the stakeholders have been identified and their

expectations from the project have been documented. Appropriate measures, which are the logical consequences to achieve the last (fourth) level objectives, have to be chosen in a following step. The refinement of fourth level objectives can lead to the re-definition of third level objectives and this, consequently, to the re-definition of the second level objectives

4.2.2 Identification of stakeholders and stakeholders needs

Stakeholders are all groups or individuals with a vested interest in the success of the demonstration. They can be:

- **Users**
 - Individuals who live in the demo area and may use the service
 - Foreign people like tourists

- **Operators**
 - Transportation companies operating buses, taxis
 - Individual taxi drivers
 - Professional associations of operators
 - Volunteer scheme organisers and administrators

- **Public Authorities**
 - Regional and local governments at various administrative and geographical levels (County, municipality, parish, prefecture)
 - Departments and offices of the different government authorities (education, health services, social services, public works)
 - Regional development agencies
 - Associations of regional and local governments, local associations of municipalities

- **Other groups involved**
 - Teacher and parent associations
 - Volunteers Associations
 - Local businesses and shop owners
 - Local Chambers of Commerce
 - Local non-profit groups (athletic clubs, cultural societies)
 - Other specific groups affected

A basic distinction should be made between the **active participants** in the project that contribute some of their resources (capital, human, infrastructure) to the demonstration and the **users** who have the opportunity to make use of the services generated by this action.

After the stakeholders have been identified, their needs and expectations should be documented. For the **active participants** the outcome of the demonstrations will lead them to one of two possible courses of action: adoption or rejection of the measures that were implemented. For example an operator expects to find out whether the introduction of a new technology for automatic vehicle tracking will improve the quality and reliability of service thereby attracting more passengers. The

local government educational department expects that shifting some of the school transportation to under-utilised municipal buses from a monopoly operator will improve total waiting and ride time. A municipality expects that combining school and social services transport will result in significant savings in costs.

Active participant's expectations are known to a degree from the inception of the project but should be refined and augmented with interviews.

Users needs are simply all movements from one geographical location to another which individuals wish or need to make in the course of their everyday lives.

Example of user needs include: the wish to be able to make a doctor's appointment without being restricted to certain days of the week; the possibility of going late-shopping and being guaranteed transport home, or the wish to visit a relative without having to rely on a neighbour for a lift.

4.2.3 Definition of measures to implement

Each demonstrator has supplied a list of measures to be implemented. The list must be refined and detailed in order to assign specific measures to particular objectives. In other words, each measure should be undertaken with the view that it will fulfil the goals of the demo as successfully as possible. Measures can be classified into the following categories:

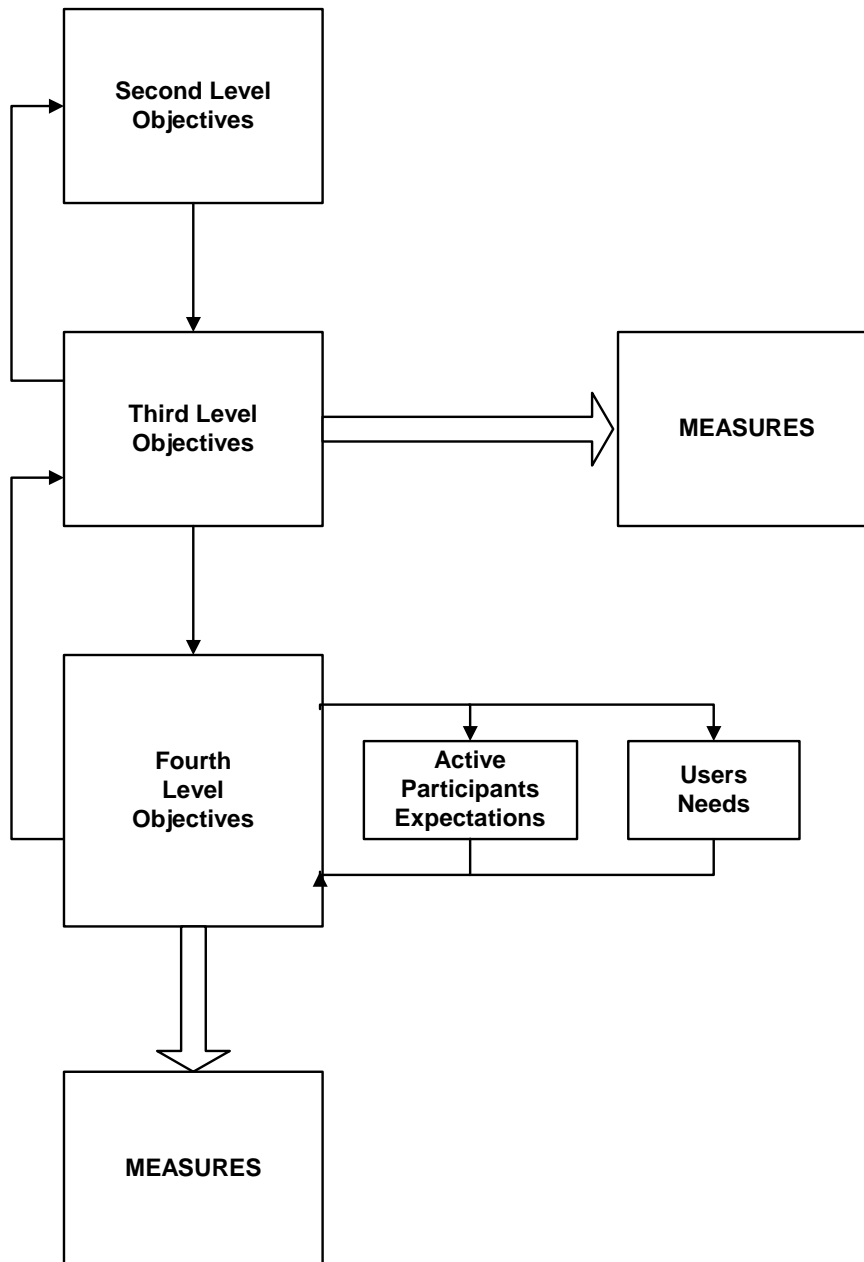
- Transport infrastructure (infrastructure, vehicles, equipment, etc)
- Transport operation
- Transport co-ordination (among systems and/or operators)
- Organisational aspects of transport (associations, mobility management, volunteers)
- Information system
- Tariff/costs measures
- Legal/regulatory framework

4.2.4 Fine-tuning of the objectives and measures according to stakeholders needs

Active participants expectations and users needs identified at the previous task should be added to the fourth level objectives. At this stage, a first set of measures is also decided.

The introduction of new objectives at the local level or the refinement of objectives that were already set from a top-down approach, may lead to the re-definition of the third level objectives. The consequence is that a new set of measures is needed to address the third level objectives. The result is that the users influence the whole process and their needs will change higher-level objectives and their corresponding measures.

If, in turn, the changes to the third level objectives are very significant, then even second level objectives must also change. This consequence though may be observed in a limited number of cases or not at all.

Graph 1: Iterative process of refining the objectives and the measures**Graph 1** Iterative process of refining the objectives and the measures

4.2.5 Impacts & Indicators

Impacts are the expected results of the measures that will be undertaken in each demonstration. Impacts are experienced by the stakeholders; the degree of success of the demonstration depends on the extent to which these impacts fulfil the needs and expectations of the stakeholders. Since stakeholder needs have been incorporated into the objectives of the demonstration, impacts translate into the success of each individual demonstration and of ARTS as a whole.

In order to assess the degree to which the objectives are attained, an indicator describing the impact is measured before and after the demonstration. By comparing the value of the indicator prior to the demonstration and after its conclusion, it is possible to assess whether a significant change has been achieved. In this way the indicator is also linked to the Fourth Level objective of the demonstration for each particular stakeholder.

According to MAESTRO indicators must be clearly assigned to impacts and consist of:

- Name of the indicator
- Measurement unit
- Type of measurement (quantitative / qualitative)
- Method of obtaining measurement
- Sources of data

4.2.6 Sorting of objectives, measures, impacts and indicators

By pursuing a “users-first” approach, ARTS has focused on the needs and expectations of the people who live in the areas where the demonstrations take place. This approach defines the framework of analysis in the Pre-design and Evaluation phases.

Objectives, measures, impacts and indicators are broken down by user group. As a result, comparisons between demonstrations are made at user level. For example, we are interested in comparing the impact of combining student and regular passengers on the student target groups in Spain and Greece.

Indicators are also assigned to anticipated impacts broken down by the main categories of users.

4.2.7 Common evaluation schedule

4.2.7.1 Evaluation phases

Two evaluation phases can be identified during the ARTS project – before and after the implementation of the demonstrations. Most indicators connected with the objectives, measures and impacts of the individual demonstrations must be included in both phases (see Graph 2):

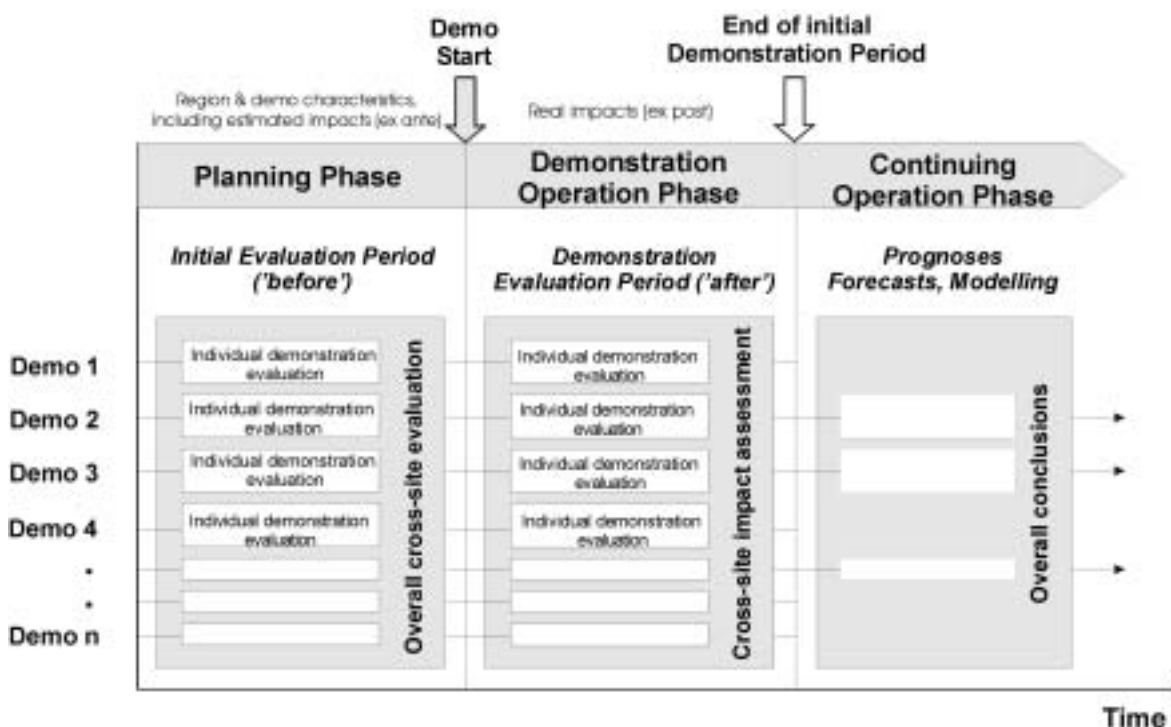
- (1) **“Before” evaluation:** This evaluation phase starts as soon as the descriptive data of the individual demonstrations allow a preliminary (cross-site) comparison. This is during the design phase of the demonstrations. The reference scenario describes:
 - (a) The situation immediately before the implementation phase;
 - (b) The expectations, which must be defined for each demonstration (ex ante): How the measures being implemented in the demonstration are expected to change the current situation. Which impacts in which form, size etc. will derive from the implementation? Which targets / target values should be reached? etc.

Standardised surveys should be conducted to investigate mobility-patterns; people’s opinions, preferences and information status etc. should be made. First comparisons between the demonstrations will be made.

- (2) **“After” evaluation:** The most interesting outputs are expected during the implementation phase and after a certain period of the running phase (ex post). The efficiency of the demonstrations,

i.e. how far the expectations have been met, can then be evaluated. The surveys will not only provide performance information on the individual demonstrations, but the impacts will again be assessed in cross-site evaluations.

Graph 2: Time scale and evaluation procedures in ARTS



Graph 2 Time scale and evaluation procedures in ARTS

Evaluations made by all demonstrations in a uniform style provide the basis for the common evaluation. A functional analysis will be performed after the definition of the relevant indicators. This analysis includes a functional evaluation (FE) focusing on transport data. Useful methods for collecting data are:

- (1) Screening for existing data (statistics etc.);
- (2) Household surveys covering socio-demographic data and mobility-behavioural data including trip-diaries, or - alternatively - telephone surveys or face-to-face interviews with the same content;
- (3) In depth surveys during the demonstration period, focused on the project target groups and tailored to the demonstration's objectives;
- (4) Other methods.

All surveys should preferably be made with representative sample sizes (around 300 targets, such as households etc.).

Monitoring of the demonstrations during the implementation phase is undertaken so as to control efficiency and to obtain up-to-date information on the operational status of the demonstrations. This will involve the adoption of "demonstration diaries" in the form of (bi)monthly demonstration reports including for each demonstration:

- The current status,
- New developments,
- Problems,
- Remedies for the problems encountered
- Changes and deviations from the intended program and timetable,
- Other relevant information

These “demonstration diaries” will allow a continuous “process evaluation” of the demonstrations’ preparation, implementation and running phase. This reporting constitutes an additional, but at the same time organic, component of the overall evaluation concept.

4.2.7.2 Scenarios

To evaluate the performance of the demonstrations over time at least two scenarios at two different times have to be surveyed:

- (1) Reference scenario (business-as-usual – “BAU” or “do nothing” – scenario): Describes the current situation without the implementation of the demonstration and all its measures. Data are collected in the before survey for each site. The future development of the current situation has to be projected – as if no demonstration were implemented – in order to provide a comparable basis for the evaluation of the demonstration’s performance.
- (2) Demonstration scenario: Describes the situation when the demonstration measures are introduced, preferably when the new services have been in operation for some time and are well known. An extrapolation of the new situation into the future has to be made to compare the reference scenario (1) with the demonstration scenario in the future.

Scenario times:

The reference year(s) should be (almost) the same for all demonstration sites

- 2000 to 2002 for the present situation;
- 2010 or 2015 for the future extrapolation (It is clear that no detailed data will be available for this period unless somebody calculates models of future development. Still – some qualitative considerations should be made, how the demonstration will/would develop over a decade and how the demonstration’s impacts can be projected to wider areas than the current demonstration areas.

Demonstration partners must state the reference years for all data and for the scenarios.

4.2.7.3 Evaluation methods

Depending on the number and quality of indicators documented, we propose to apply the following analyses and evaluations to all demonstrations:

As quantitative indicators:

- FE (functional evaluation) of transport indicators
- MCA (multicriterial-analysis)
- CEA (cost-effectiveness analysis)
- CBA (cost-benefit analysis)

As qualitative indicators:

- DS (degree of success according to the objective)
- MCAQ (qualitative multicriterial analysis)

A common framework of indicators has been developed (see Tables 4, 5, 6 etc.). Evaluation procedures will be discussed. It is proposed to use CEA and CBA for the evaluation of the effectiveness of the individual demonstrations. As the main activities in all demos are improvements in PT, standard prices of transport supply (like costs per passenger-km, etc.) can be calculated and evaluated. The MCA describes the situation verbally, where possible assisted by figures and

numbers. The changes in specific indicators between the reference scenario and the demonstration scenario are assessed and evaluated. Where target values for indicators can be established, the fulfilment of pre-defined limits etc. can be quantified.

4.2.7.4 Data collection

The data collection has the following objectives:

- To obtain basic socio-demographic and transport data which are needed for further evaluation;
- To collect information on selected indicators;
- To monitor other possible effects.

4.2.7.5 Data collection strategies

In a first step, each demonstration responsible has received a table to be filled in with individual data collection strategies. The results can be seen in Table 3.

Country	Demonstration	Data collection strategies (surveys and methods)		
		Initial	Before	After
Austria	ALMA	<ul style="list-style-type: none"> • Austrian mobility survey 1996 • Census 2001 • Other statistics • Focus groups 	<ul style="list-style-type: none"> • Household survey (socio-demographic data & trip diaries) postal • In depth interviews (face to face) 	<ul style="list-style-type: none"> • Individual trip data of PT service users • User / non user interviews • Driver interviews • Operator interviews • Other interviews • Data of transport costs
Finland	LEPPÄVIRTA	<ul style="list-style-type: none"> • Finnish mobility survey from 1998 • Census 2001 • Statistics on transport services in Leppävirta • Municipal statistics on target groups 	<ul style="list-style-type: none"> • Telephone interviews (socio-demographic data & mobility) of 290 inhabitants focused on target groups in May 2002. • Postal questionnaire for people whose transport costs are covered by the municipality. 	<ul style="list-style-type: none"> • Repetition of telephone interviews. • Repetition of postal questionnaire for people whose transport costs are covered by the municipality. • Interviews of passengers on the service lines. • Interviews of drivers/operators of the service lines. • Interviews of municipal civil servants and collection of data on municipal spending on transport services. • Measurement of

Country	Demonstration	Data collection strategies (surveys and methods)		
		Initial	Before	After
				vehicle characteristics. <ul style="list-style-type: none"> Collection of data on transport and communication costs.
Greece	MESSARA	<ul style="list-style-type: none"> Census 2001 Statistics collected at regional, prefecture and municipal level 	<ul style="list-style-type: none"> Household surveys – trip diaries (face-to-face interviews) On-board interviews after demo start with users about prior to demo implementation trip characteristics and behaviour 	<ul style="list-style-type: none"> Demo-generated data On-board interviews with users (impact on individual mobility, satisfaction, impression of service) Interviews with stakeholders (municipalities-operators, educational authorities, social services etc.) Focus groups
Hungary	UPGRADE/DEVELOPMENT	<ul style="list-style-type: none"> National O-D traffic counts 1996 National statistics 	<ul style="list-style-type: none"> household survey (socio-demographic data) In depth interviews about mobility chains and future needs (face to face) 	<ul style="list-style-type: none"> Trip data of school bus services User interviews (pupils) Parents interviews Operator interviews Municipality interviews
Ireland	BEALACH	<ul style="list-style-type: none"> County Rural Transport Audit Focus Group Workshops Household interviews Seminar Interviews with key agencies 		<ul style="list-style-type: none"> Individual trip data of PT service users User interviews Operator interviews Key agency interviews

Country	Demonstration	Data collection strategies (surveys and methods)		
		Initial	Before	After
Spain	RUTO	<ul style="list-style-type: none"> Demographic and socio-economic statistics Transport statistics from operators (passengers, veh. /km, etc) Data of transport costs 	<ul style="list-style-type: none"> Household survey?? Counts and surveys on board Interviews with stakeholders Public transport data available (number of passengers in regular lines affected by integration, number of passenger in school transport, free places in transport school) Data of transport costs 	<ul style="list-style-type: none"> Counts and surveys on board Interviews with stakeholders Interviews with health, education and social services and commerce to check increase in mobility patterns. Public transport data available (number of passengers in regular lines, number of passenger in school transport, free places in transport school) Data of transport costs
Sweden	SAMKOM	<ul style="list-style-type: none"> Public statistics of population, transport use and modal split In depth interviews (face to face) 	<ul style="list-style-type: none"> Telephone interviews use and opinion of public transport (500) Focus groups Individual trip data of PT service users Economic statistics for operators 	<ul style="list-style-type: none"> Telephone interviews use and opinion of public transport Individual trip data of PT service users User interviews Driver/operator interviews Economic statistics for operators
UK	CYMRU	<ul style="list-style-type: none"> National statistics Gwynedd Council surveys 	<ul style="list-style-type: none"> Operator (bus and rail) service data and statistics Passenger surveys on-board and at bus-rail interchanges Focus groups with users of existing services Interviews with key-stakeholders 	<ul style="list-style-type: none"> Passenger surveys on-board and at bus-rail interchanges Focus groups with users of RTI services Focus groups with non-users of RTI services Interviews with key-stakeholders Surveys at tourist attractions "Mystery passenger" surveys

Table 3 Data collection strategies per demonstration

4.2.7.6 Impacts, indicators and values

Impacts, indicators and values:

Impacts of the demonstration's measures are evaluated by means of measurable indicators. The relevant data for these assessments are the differences in the values of the demonstration scenario compared with the values of the reference scenario.

A table of objectives at four levels was drafted and revised in discussions with some partners (see Table 4 and Table 5). The linking of objectives – measures – impacts – indicators and stakeholders seems fine for the individual demonstrations, but proved too confusing for the general framework as most objectives are linked with almost all stakeholders (compare Table 5). For this reason the links are discussed in Sections 4.3.1 through 4.3.4 of this document broken down into objectives – measures, impacts and indicators all set out for each stakeholder.

Table 4: Four level objectives – overview

1	2	3	4
<i>First level</i>	<i>Second level</i>	<i>Third level</i>	<i>Fourth level</i>
<i>Transport objectives</i>	<i>Sector objectives</i>	<i>Area objectives, improve</i>	<i>Application for P/D evaluation objectives (sorted by stakeholders)</i>
Economic efficiency	Rural transport supply to meet the mobility demand of the users	Availability of transport services	see following table
		Accessibility (physical) to transport services	
		Level of service to users, quality of information	
		Degree of intermodality	
		Fair and intelligible tariff system	
	Rural transport efficiency at minimum costs for operators, organisations and public bodies	Low operating and capital costs	see following table
		Higher PT- occupancy rates	
		Efficiency of goods transport	
Regional development	Quality of rural life	Accessibility to destinations	see also: Transport supply
		Community integration , social bonds within the municipalities, etc.	
		Traffic safety	
		Support for local businesses , prerequisites for new jobs	
Environmental protection	not to be commented in ARTS		

Table 4 Four level objectives – overview



Table 5: Four level objectives – details

<i>Transport objective:</i> Economic efficiency																
<i>Sector objective:</i> Rural transport supply to meet the mobility demand of the users																
<i>Third level</i>		<i>Forth level</i>				<i>Stakeholders</i>				<i>Measures</i>	<i>Impacts</i>	<i>Indicators</i>	<i>Evaluation</i>			
<i>Area objectives</i>		<i>Application for P/D evaluation objectives (sorted by stakeholders)</i>				<i>Users (inhabitants, tourists)</i>	<i>Operators</i>	<i>Public bodies (municipalities, etc.)</i>	<i>Others (e.g. shopkeeper, parents, etc.)</i>				<i>Quantitative / qualitative (verbal description)</i>	<i>initial</i>	<i>ex-ante</i>	<i>ex-post</i>
Improved availability of transport services	To guarantee accessibility to centres, shops, health services, social activities, etc.	☺	☆	☆	☺	Increasing the number of vehicles; establishing new routes; implementing new forms of PT; increasing the variety of PT-services; implementing door-to-door services; extending operating hours; lowering ticket fees; increasing the frequency of service (in general or on specific day periods or weekdays); rehabilitation of closed rail services, providing a delivery service for goods, etc.	Better accessibility to destinations, more frequent opportunities for trips, better quality of life for users depending on PT and on local supply, time saving, reduced waiting times	frequency [runs per day]; number of PT-services (bus, train, etc.) between x and y per hour or per day; [vehicles/route]; route length [m]; number of different PT-services available; [services/day]; local supply with goods (shops, etc.); distance to the nearest shop; regular (goods) delivery services, satisfaction of the user, etc.		✓	✓					
	To have sufficient and affordable PT-services available for trips between x and y including flexibility of routes	☺	☆	☆	☺					✓	✓					
	To have PT-services available when needed (higher flexibility of timetables)	☺	☆	☆	☺					✓	✓					
Improved accessibility (physical) to transport services	To have easier physical access to PT-vehicles	☺	☆	☆	☺	Provide vehicles with easy physical access (purchase new vehicles or refurbish old ones); training for drivers to offer assistance	Easier access for disabled and old persons and persons with baby carriages	number/percentage of busses equipped with low floors, etc.		✓	✓					
	To have easier physical access to PT-stops	☺	☆	☆	☺	To improve the roadside environment (traffic calming, etc.); well-planned disposition of the stops; organisation of pick-up services	Shorter ways to PT stops, improved traffic safety, better quality of life for citizens	number of obstacles on the way to a PT-stop (within a radius of 300m); average distance between the PT-stops; distance to the nearest bus/train stop		✓	✓					
Better level of service to users, better information	To obtain better knowledge on available PT services (for inhabitants, tourists, etc.)	☺	☆	☆	☺	Set up a mobility/information centre (e.g. in the municipal office); provide folders and time-tables of PT-services for all households; integrate new technologies in the provision of information (internet, telematics, etc.); develop and distribute understandable, up-to-date and easy to read information materials	Attraction of potential PT-users	Information level of the potential users; satisfaction of the user; spending on information materials [EURO/year]; telephones in a household; computers per household			✓					
	To have better personal service when ordering and reaching a ride and during a ride	☺	☆		☺	Information devices (electronic boards at stops; timetable via internet, etc.); training for drivers and information providers; keeping the vehicles clean, comfortable and well maintained; attending to punctuality, etc.	More satisfied users	Satisfaction of the users [number/percentage of requests/complaints]			✓					

PT Public Transport ☺ Stakeholder **benefits** from this objective ☆ Stakeholder **is affected** by this objective

Table 5 Four level objectives – details



Transport objective: Economic efficiency													
Sector objective: Rural transport supply to meet the mobility demand of the users													
Third level		Forth level		Stakeholders			Measures	Impacts	Indicators	Evaluation			
Area objectives		Application for P/D evaluation objectives (sorted by stakeholders)		Users (inhabitants, tourists)	Operators	Public bodies (municipalities, etc.)	Others (e.g. shopkeeper, parents, etc.)			Quantitative / qualitative (verbal description)	initial	ex-ante	ex-post
Higher degree of intermodality		To have possibilities to park vehicles (Park & Ride; Bike & Ride); Kiss & Ride	☺	☆	☆	☺	Implementation of P&R, B&R, K&R facilities (parking sites; garages; parking facilities for bikes)	More frequent changes from private car to PT due to the improved supply (more options for commuters), easiness to bring persons to PT-stops (improved traffic safety)	[number of P&R, B&R, K&R facilities in the region]		✓	✓	
		To provide access and information	☺	☆	☆	☺	Set up a mobility/information centre (e.g. in the municipal office); provide folders and time-tables of PT-services for all households; integrate new technologies in the provision of information (internet, telematics, etc.); develop and distribute understandable, up-to-date and easy to read information materials	Attraction of potential users	Information level of the potential users, satisfaction of the user			✓	
Improved fair and intelligible tariff system		To be able to use multiple services with minimum effort	☺	☆		☺	One ticket for multiple services; electronic ticketing; cheap tariffs for certain user groups; discounts for multi-users	Reduced costs for users and PT-operators, user-friendly ticketing	categories of tickets available; trip fares [/trip], [/km]; satisfaction of the user			✓	

Transport objective: Economic efficiency													
Sector objective: Rural transport efficiency at minimum costs for operators, organisations and public bodies													
Third level		Forth level		Stakeholders			Measures	Impacts	Indicators	Evaluation			
Area objectives		Application for P/D evaluation objectives (sorted by stakeholders)		Users (inhabitants, tourists)	Operators	Public bodies (municipalities, etc.)	Others (e.g. shopkeeper, parents, etc.)			Quantitative / qualitative (verbal description)	initial	ex-ante	ex-post
Reduce operating and capital costs		To get a reasonable coverage for operational and capital costs		☺		☺		Claiming subsidies, finding private partners for financing (sponsors)	PT-operators are able to provide cheaper services	expenses (initial investments, operating costs, etc.); income (revenues from ticket sales, subsidies, etc.); costs per passenger and kilometre [/person x km]; funding		✓	✓
Increase (PT-)occupancy rates		To reach efficient occupancy rates		☺				Provide a good service and information	Increased number of passengers	occupancy [number of passengers/vehicle]; capacity [number of seats]		✓	✓
Increase efficiency of / introduce goods transport				☺	☺		☺	Provide goods transport, delivery services	Better supply with goods for immobile persons			✓	✓

PT Public Transport ☺ Stakeholder **benefits** from this objective ☆ Stakeholder **is affected** by this objective

Table 6 Four level objectives – details (continued)



Another table / questionnaire was circulated asking partners to fill in which data will be collected and documented from the specific demonstration for further evaluation (Tables 7, 8 and 9). Some of the values are available from national, regional and local statistics, others need to be established in the course of the data collection procedures. Together with the data, information is also needed to describe the collection procedures, sample sizes, stating the references and the year of reference, etc. The results will be available in Deliverable D4.

Category	Indicator	Value	Comments	Data collection procedure(s)	Why?	Survey period	
region characteristics (socio-demographic overview)	area size	[km ²]	combine with map	national / regional statistics	make countries and regions comparable	i, b	
	population	[total number of people living in the area]					
	population age structure per gender	[% of age groups per gender]	specify by gender and age classes				
	employment characteristics	[employed (full time / part time), home duties, not yet at school, education (school, job training/apprenticeship or university studies), retired, others]	interesting for "target groups" (details)				
	gross earnings of employees of the country, of the region	[per person / month]	average value				
	average household size	[number of persons per household]	in the region, mean value				
region characteristics (transport, PT-situation overview)	motorization	[cars & vans per 1000 inhabitants]	-	statistics / surveys (best quality: trip diaries included in household surveys)	make countries and regions comparable	i, b	
	modal split	[% of trips per mode]	distinguish between modes: walking, bicycle, public bus, company-owned bus, coach, train, scooter or motorbike, car-driver, car-passenger, others (specify - local modes of PT and paratransit)				
	mean price of unleaded fuel, cheapest quality	[per litre]	-				ask / phone motorist's organisations etc.
		mean price of diesel fuel	[per litre]	-			qualitative / quantitative description
	PT-legal responsibilities, organisational structures	(legally) responsible organisations for PT supply in this region / demonstration	who is responsible for community / municipality transport and what must be done by law ?				
		description of the PT system/situation	(modes of PT), who runs the PT-services?, which deficiencies in PT do exist?	deficiencies in PT-services (inadequate number of buses per day etc.), map with detailed information recommended			
		PT-stops	[number, situation]	describes and characterises PT supply situation			ask / phone PT organisations etc.
		numbers of PT-runs (buses, trains, collective taxis etc.) per day	[PT runs per day]	distinguish: normal workday, Saturday, Sunday, during the year and during holidays			
		capacity - km	[seat-km per day and mode] - supply	distinguish: normal workday, Saturday, Sunday, during the year and during holidays and combine with map			
		passenger - km	[passenger-km per day and mode] demand				
	price of PT tickets (single ticket for short distance, 20km, 100km) bus and train	[]	-				
socio demographic, per household in the region	persons per household, of those also: persons < 6 years of age	[persons/household] [persons < 6 years of age/household]	persons who live continuously in this household in two age-categories	best quality: household surveys (postal, telephone interview or face to face interview); see forms: household survey; some data of the "before" period can also be collected "ex post" in the "after" period, but then only PT-users will be addressed, which results in strongly biased data	make countries and regions comparable at household level	b	
	Telephones in the household per category	[number]	distinguish between stationary phone and mobile phone(s)				
	computers per household	[number]	distinguish with/without internet access				
	availability of motorised vehicles per household in categories	numbers of: [private cars /household], [motorcycles, scooters/ household], etc.	five categories: (0, 1, 2, 3, 4 or more) for cars, etc.; availability of motorized vehicles in a household makes more sense than i.e. car-ownership --> mode choice, etc.				
	distance to the nearest bus-stop	[m]	availability of PT				
	distance to the nearest train-stop	[m]	availability of PT				
	local supply with goods (shops etc.), distance to the nearest shop (grocer)	[m]	accessibility to basic supply				
	regular mobile (goods) services	[kind of service per week]	grocer, bakery, butcher, fruits & vegetables, delivery services, village markets etc.				
	local supply with medical / social services (doctors, hospitals, old people's homes, etc.), distance to the nearest doctor etc.	[m]	accessibility to medical care etc.				
socio demographic and mobility, per person (assigned to household)	year of birth	[year]	age categories are more complicated to survey and handle; different ages for driving licenses etc. may exist in the demo-countries	best quality: household surveys (postal, telephone interview or face to face interview); see forms: household survey; some data of the "before" period can also be collected "ex post" in the "after" period, but then only PT-users will be addressed, which results in strongly biased data	make countries and regions comparable at person's level	b	
	gender	[male / female]					
	occupation / employment status	[employed (full time / part time), home duties, not yet at school, education (school, job training/apprenticeship or university studies), retired, others]	see example of household questionnaire; different employment situations show different mobility behaviour				
	car-driving license	[yes / no]	ownership				
	ownership of tickets for public transport	[none, half-price pass, weekly ticket, monthly ticket, year-ticket, student/pupil-ticket, others - specify]	reduced-price-tickets, season tickets, commuter tickets etc. according to individual demo surroundings				

Table 7 "Must indicators", which ought to be provided by most demonstrations.

Category	Indicator	Value	Comments	Data collection procedure(s)	Why?	Survey period
trip characteristics (assigned to person)	trip-origin	[postal address]	including home address	best quality: one day trip diary included in and collected with household survey (postal, telephone interview or face to face interview); see form: trip diary; trip data of the "before" period can also be collected "ex post" in the "after" period in cases where users of the PT systems are unlikely to be addressed	make mobility characteristics of the demonstration areas comparable; learn mobility characteristics of (potential) PT users; design the mobility supply of the demonstration	b
	start time	[hh:mm]				
	trip-purpose	[work, business, school or education, shopping, service trip, leisure, other (specify)]				
	mode of transport	[walking, bicycle, public bus, company-owned bus, coach, train, scooter or motorbike, car-driver, car-passenger, other (specify)]	other vehicles available, for example special transport services of the demonstration area should be included			
	number of passengers	[distinguish between family-members and non-members]	only if mode was with vehicle offering additional seats beside the driver's			
	trip-destination	[postal address] or "home"				
	arrival-time	[hh:mm]				
	distance	[km]	estimation, can be checked			
demo operation performance data (stakeholders: operators and public bodies)	expenses (different categories: initial, investments, operating costs, fixed, running costs, etc.)	[/ unit]		information provided by the operator and by public bodies (funding) including interviews with these stakeholder groups	make operation performance comparable	(b), a
	incomes (revenues, subsidies)	[per category]	total, per trip, etc.; revenues from ticket sales			
	costs per passenger and kilometre	[/ per (person x km)]				
	funding	[/], percentage of total costs				
	route length	[km]	for each newly improved service (line)			
	route details	-	qualitative			
	number of stops per route	[n]				
	frequency (time tables)	[runs per day], [time]	for each newly improved service (line)			
	vehicles	[number]	for each newly improved service (line)			
	capacity	[number of seats etc.]	for each newly improved service (line)			
	(negative) side effects for other transport operators	-	whether other transport operators (taxis etc.) are affected by the new services			
performance data (operation, cooperation, etc.)	-	qualitative				
demo-performance data / user satisfaction (stakeholder: user)	trip fares	[per trip] [/ per kilometre]	to be specified in more details	information provided by the operator	evaluate user's satisfaction and performance of the service	a, (b)
	knowledge of the service, of time tables, fares etc.	open questions	qualitative	interviews with passengers (during trip in vehicle, in depth at home, at PT stops etc.); here also some basic "before" data can be obtained, when no other surveys are possible		
	bookings, waiting time, reliability	open questions	qualitative			
	quality of service	open questions	qualitative			
	intermodality	improvements in changing modes	qualitative			
	user's suggestions of improvements	open questions	qualitative			
	(dis?)advantages of DRT services compared with fixed-time PT-supply	open questions	qualitative			
general use of telematics for information on operation details etc.	open questions	qualitative				
PT transport demand	passenger numbers "on board"	[numbers of passengers per hour/day] on labour day	data measured in actual services and in the new services	passenger counts (on board)	evaluate efficiency of new services	b and a
	passenger numbers "on board"	[numbers of passengers per hour/day] on weekend				
	passenger numbers "per stop"	[numbers of passengers per hour/day] on labour day		passenger counts (at the stop / station)		
	passenger numbers "per stop"	[numbers of passengers per hour/day] on weekend				
trip characteristics (stakeholder: user)	see also trip characteristics of before surveys		focused on users of the PT-systems; all relevant data to check changes in the mobility behaviour and performance of the demonstration	interviews with passengers (during trip in vehicle, in depth at home, at PT stops etc.); here also some basic "before" data can be obtained, when no other surveys are possible	evaluate changes in the mobility behaviour of the users (= performance of the services)	a, (b)
	trip-origin	[postal address]	including home address			
	start-time	[hh:mm]	check during on board survey			
	trip-purpose	[place of work, business, school or education, shopping, service trip, leisure, towards home, other (specify)]				
	more frequent trips compared with "before"	[frequency of this trip (destination / purpose) per week / month]	ask whether this destination was visited less / equally / more often "before"			
	former mode of transport before introduction of demo - PT	[walking, bicycle, public bus, company-owned bus, coach, train, scooter or motorbike, car-driver, car-passenger, other (specify)]				
	trip-destination	[postal address] or "home"				
	new trip destinations compared with "before"	[type of destination]	ask whether this destination was used "before"			
	arrival-time	[hh:mm]				
	distance	[km]	estimation, can be checked			
	means of booking for the trip	[telephone, others (specify)]	check use of telematics			
	return trip - transport mode	[walking, bicycle, public bus, company-owned bus, coach, train, scooter or motorbike, car-driver, car-passenger, other (specify)]				
	return trip origin	[postal address]				
	return trip destination	[postal address] or "home"				
return trip start-time	[hh:mm]					
return trip arrival-time	[hh:mm]					

Table 8 "Must indicators", which ought to be provided by most demonstrations (continued 1)

Category	Indicator	Value	Comments	Data collection procedure(s)	Why?	Survey period
economic indicators	Increase or decrease in the number of trips to the main village in the area	Number of trips		Origin-destination data (previous) and ARTS survey	It is interesting to know if the main village increased or not the attraction on the area	a, (b)
	Changes in the position (of the different municipalities involved in the demo area) within the regional economic ranking (GDP or GRP)	Number of positions moved before and after in the ranking	To determine which economic indicator will be used (In Spain it is possible to use the Family Economic Indicator)	Economic statistics	It is important to know if the area increased its importance in the whole of the region	
	Changes in the position of each municipality within the regional economic ranking	Number of positions moved before and after in the ranking	To determine which economic indicator will be used	Economic statistics	It is important to know if the municipality increased its importance in the whole of the region	
	Global increase or decrease (economic balance) of the enterprises and companies located in the area	number of work places	To fix the number of companies to be analyzed	Economic statistics	It will give us an idea about the economic growth or not in the area	
	Satisfaction of owners of shops	Open questions	qualitative, ask also if shop owners know of the new PT services	Interviews and focus groups with several owners of shops and business in the area	They will be asked about a possible relationship between the new rural transport services and increases in the sales	
	Increase of use of public services in the main towns (health, social services, etc)	Open questions	qualitative	interviews on public services responsables	They will be asked about a possible relationship between the new rural transport services and increases in the visits	
	Evolution in depopulation process	Open questions	qualitative	interviews with local administrations	They will be asked about a possible relationship between the new rural transport services and depopulation services	
<p><u>Survey period:</u> i initial b before a after</p>						

Table 9 "Must indicators", which ought to be provided by most demonstrations (continued 2)

All demonstration responsible partners replied and indicated which data will be available from their demonstration during the reporting and evaluation process. These data will form the basis of the evaluation and cross-site impact assessment (D4).

4.3. Pre-design Phase Results

Information for the Pre-design phase of each demonstration was collected by means of a questionnaire that was completed by all National Partners Responsible for the demonstrations, covering:

- Stakeholders
- Objectives
- Measures
- Impacts
- Indicators

A comparison between the pre-design characteristics of the demonstrations on the basis of the information provided is undertaken in Sections 4.3.1 to 4.3.4 of this document.

4.3.1 Stakeholders

Four major groups of stakeholders were identified in ARTS:

1. Users
2. Operators
3. Public Bodies
4. Others

Each of the above categories has an interest in the success of the demonstrations and will be directly or indirectly involved with their implementation.

4.3.1.1 ARTS Stakeholder Group: Users

Users are passengers who use the services offered by the various demonstrations. All demonstrations are open to the general public and aim to transport as many passengers as possible.

Users have the typical profile of the PT passengers:

- (1) They do not have access to a car either because they do not own one or because they have no driving licence.
- (2) They cannot drive because they have a physical limitation.
- (3) They do not want to drive a car for any reason.

It is expected that older inhabitants of the demonstration areas will form the majority of the passengers on demonstration vehicles, but only four of the demonstrations take specific measures that target this age group.

Similarly, younger people are able to use the services in all ARTS demos but only in Sweden and Ireland they are target groups.

Three demonstrations are based on school transport and for them students are a distinct user category.

Only in one of the demonstrations tourists are a targeted group of users.

4.3.1.2 ARTS Stakeholder Group: Operators

The operators of services in ARTS fall into the following distinct categories:

- (1) Private operators
- (2) Volunteers
- (3) Municipal operators

Private operators are present in all but 2 demonstrations. One demonstration is being run exclusively by volunteers and another one by the municipal government of the area. In BEALACH services are subcontracted to local private operators and to local development groups that are managed by volunteers at the highest level.

A special category of stakeholders is that formed by two railway operators in the Welsh demo, who are not involved directly as operators, but will benefit from the demonstration.

Also the operators of Travel Dispatch Centres were included in this user group since they are affected by the demonstrations that make use of their facilities.

4.3.1.3 ARTS Stakeholder Group: Public Bodies

A variety of Public Bodies is involved in ARTS at different capacities and at different administrative levels. It is remarkable that in every case the municipality or a similar administrative unit of the area where the demonstration takes place has a strong interest in the success of the action. Additionally, specific departments within the municipality play a role in three demonstrations.

Various administrative units at the regional level have provided funding for the demonstrations, while only in Ireland did an initiative to provide funds come from the central administration.

4.3.1.4 ARTS Stakeholder Group: Others

The last category of stakeholders consists of groups with a less direct involvement in the demonstrations compared with the other user groups. It is possible that they will use the services offered, but at this is not their main incentive in being part of the ARTS demonstrations. These are groups active in rural areas in a variety of social undertakings and their objectives can best be achieved when developed transportation services exist.

These groups include associations of users of Public Transport, associations active in local development, educational affairs and commerce.

The results of the Pre-design phase concerning the ARTS stakeholders are summarised in Tables 10 and 11.

		ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)	
USERS		Persons with no car availability Persons who are not willing or able to drive								
		Elderly	Elderly	Elderly	Elderly			Elderly		
		Disabled	Disabled	Disabled	Disabled					
		Young people	Young people (12-19)	Young people				Students	Students (5-15)	Students (6-14)
		People working at home	People working at home	Inhabitants working at home						
		Tourists					Visitors to the area / tourists			
OPERATORS	Private operators		Local private bus and taxi operators	Local private operators (Mini-vans or other vehicles)	Local private operators (Mini-bus, taxis)	Local private operators (Buses)	Private Transport companies in charge of regular and school PT services		Bus operator	
	Volunteers	Members of a volunteers association	Local voluntary organisations							
	TDC operator		Bealach (Travel Demand Centre)	SOS booking office	Operator of Kuopio TDC					
	Municipal							Municipality of Rouvas		
	Rail						Two railway companies			

Table 10 ARTS Stakeholder groups: Users, Operators

		ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
PUBLIC BODIES	Local	Municipality of Klaus	Cashel Community Council	Municipality of Gotland (Gotlands Commune)	Municipality of Leppävirta	Relevant parish / ward councils	Municipality of: <ul style="list-style-type: none"> Viana do Bolo Vilariño de Conso <ul style="list-style-type: none"> A Veiga Bolo 	Municipality of Rouvas	Municipality of Kecskemét
				Transport Committee of the Municipality of Gotland	Educational, social, health and technical sectors of the Municipality			Social sector of the Municipality	
	Regional	Provincial government of Upper Austria	Údarás na Gaeltachta	Municipality of Gotland (Gotlands Commune)	Eastern Finland Province	Gwynedd Council	Regional transport administration	Prefecture of Heraklion	
			Galway County Development Board			National Assembly for Wales	Regional Education administration		
			Western Health Board						
	National		Department of Transport						
OTHER GROUPS	Transport users associations			Public transport users "council"		Community Rail Partnership			
	Educational associations						School boards and teachers associations	Parents Association	Advisory Groups of Parents of Primary Schools
	Development agencies		Cumas Teo, FORUM				Regional development agencies		
	Other		Local post offices and shops			Non bus users	Local associations (dwellers, business and commerce, rural tourism, sport or cultural, etc.)		NGO: Local patriots of Kecskemét

Table 11 ARTS Stakeholder groups: Public Bodies, Other groups

4.3.2 Pre-design Phase: Objectives

As described in Chapter 4.2.7.6 the First Level objectives of ARTS fall under two categories of the highest-level Transportation objectives:

- (1) To increase the Economic Efficiency of Transport
- (2) To support Rural Development

These top-level objectives are common to all demonstrations.

4.3.2.1 ARTS: First Level Objective: Increase Economic Efficiency of Transport

ARTS Second Level Objective: Increase Rural Transport Supply to meet the Mobility Demand of the Users

It can be argued that ARTS will show how economically effective services can be operated in rural environments across Europe. This will prove that, once sustainable services can be offered, supply will increase and mobility in rural areas will improve.

This is exactly the Second Level Objective that all demonstrations aim to achieve. Improvement in mobility and increase in supply can be attained if the following lower level objectives are realised:

- (1) Improved availability of Transport Services
- (2) Higher degree of intermodality
- (3) Improved access (physical) to transport services
- (4) Better level of service to users, better information
- (5) Improved fair and intelligible tariff system

Each of these objectives translates to different Fourth Level Objectives and their corresponding measures for each User Group. For example all rural inhabitants probably desire to have more or better transport services available. Each demonstration achieves this objective with different methods: some increase the frequency of already existing services, some introduce services in places where none was available before and others introduce demand-responsive services that allow more flexibility in choosing destinations. For other categories of user, the same objective can be achieved with the introduction of special services such as a school bus.

It can be argued that all measures that all measures which increase mobility essentially attract more passengers to Public Transportation and since PT is the most economically effective transportation mode the overall economic efficiency of Transport improves.

Demonstrations that offer better information about service characteristics (routes, timetables, stops) and better levels of service will be in position to attract more passengers.

Table 12: ARTS Objectives: Increase Economic Efficiency of Transport and Rural Supply (per Stakeholder)

<p>First Level Objective: Increase the Economic Efficiency of Transport</p> <p>Second Level Objective: Increase Rural Transport Supply to meet the Mobility Demand of Users</p> <p><i>Users: No car availability, unwilling or unable to drive</i></p>			
Table 12: ARTS Objectives: Increase Economic Efficiency of Transport and Rural Supply (per Stakeholder)			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improved availability of Transport Services	To guarantee access to centres, shops, health services, social activities, etc.	Introduction of new local services where no publicly available service existed	ALMA, BEALACH, MESSARA, RUTO
		Implementing demand-responsive and door-to-door transport services	ALMA, BEALACH, SAMKOM, LEPPÄVIRTA
		Combine school and regular passenger transport	RUTO, MESSARA
	To have sufficient and affordable PT-services available for trips between x and y including flexibility of routes	Implementing demand-responsive and door-to-door transport services	ALMA, BEALACH, SAMKOM, LEPPÄVIRTA
		Increase frequency of service by better co-ordination of already existing services	SAMKOM, LEPPÄVIRTA, RUTO
		Lower fares in areas where taxis are the only PT mode available	RUTO, MESSARA
		Keep fares at the level of existing PT system	ALMA, SAMKOM, LEPPÄVIRTA
Higher degree of intermodality	To have connections with existing PT system	PT stops are preferred destination for on-demand service	ALMA
		Checkpoints, timed stops to transfer to long-distance PT (bus , rail) service	ALMA, SAMKOM, LEPPÄVIRTA, BEALACH
		Stops where possible to transfer to long-distance bus services	RUTO, MESSARA
		Real-time travel information at bus-railway interchanges	CYMRU
Improved accessibility	To have easier physical access to	Introduction of new low-floor vehicles	CYMRU

Table 12: ARTS Objectives: Increase Economic Efficiency of Transport and Rural Supply (per Stakeholder)			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
(physical) to transport services	PT- vehicles		
Better level of service to users, better information	To obtain better knowledge on available PT- services (for inhabitants, tourists, etc.)	Travel Demand Centre is information point for all regional transportation services	BEALACH
		Real-Time Travel Information available over mobile or landline phone	CYMRU
		Bi-lingual information	BEALACH, CYMRU
	To have better personal service when ordering and reaching a ride and during a ride	Experienced Travel Dispatch Centre personnel	SAMKOM, LEPPÄVIRTA, BEALACH
		Direct call to driver is a convenient and uncomplicated way to reserve a ride	ALMA
		Training of drivers	BEALACH
Improved fair and intelligible tariff system	To be able to use multiple services with minimum effort	Through ticketing	SAMKOM
		Single fare for all trips	ALMA

First Level Objective:

Increase the Economic Efficiency of Transport

Second Level Objective:

Increase Rural Transport Supply to meet the Mobility Demand of Users

Users: Elderly

Table 12: ARTS Objectives: Increase Economic Efficiency of Transport and Rural Supply (per Stakeholder)			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improved availability of Transport Services	To guarantee access to centres, shops, health services, social activities, etc.	Visits to Day Care Centres organised by Social Services on demonstration vehicles	ALMA, SAMKOM, LEPPÄVIRTA, BEALACH, MESSARA
	To have sufficient and affordable PT- services	Ability to make use of free travel pass	BEALACH

First Level Objective: Increase the Economic Efficiency of Transport
Second Level Objective: Increase Rural Transport Supply to meet the Mobility Demand of Users

Users: Young People

Table 12: ARTS Objectives: Increase Economic Efficiency of Transport and Rural Supply (per Stakeholder)

Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improved availability of Transport Services	To guarantee access to centres, shops, health services, social activities, etc.	Special night service to central city of the area on Fridays	SAMKOM
		Information about transfer possibilities to long-distance service available at the Travel Demand Centre	BEALACH

First Level Objective: Increase the Economic Efficiency of Transport
Second Level Objective: Increase Rural Transport Supply to meet the Mobility Demand of Users

Users: Disabled

Table 12: ARTS Objectives: Increase Economic Efficiency of Transport and Rural Supply (per Stakeholder)

Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improved availability of Transport Services	To guarantee access to centres, shops, health services, social activities, etc.	Wheel-chair accessible vehicles.	ALMA ¹ , SAMKOM, LEPPÄVIRTA, BEALACH

¹ The drivers help the disabled entering and leaving the vehicle, also disabled people are transported door-to-door and their luggage is carried too.

<p>First Level Objective: Increase the Economic Efficiency of Transport</p> <p>Second Level Objective: Increase Rural Transport Supply to meet the Mobility Demand of Users</p> <p><i>Users: Students</i></p>

Table 12: ARTS Objectives: Increase Economic Efficiency of Transport and Rural Supply (per Stakeholder)

Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improved availability of Transport Services	To have PT-services available when needed (higher flexibility of timetables)	Introduce School Transportation for the first time	ALMA, DEVELOPMENT, MESSARA

Table 12 ARTS Objectives: Increase Economic Efficiency of Transport and Rural Supply (per Stakeholder)

ARTS Second Level Objective: Rural Transport Efficiency at Minimal Costs

Another way to achieve the same First Level Objective in ARTS, i.e. Increase the Economic Efficiency of Transport, is to control costs without sacrificing the service levels and availability of supply. This is the objective of Operators and Public Bodies that participate in ARTS.

Operators benefit from higher occupancy rates in the demonstration areas and from contracts for new services offered within ARTS which bring in additional revenues. It is not only private operators who have increased occupancy rates as an objective; municipalities and other local groups may now be able to make regular use of their previously under-utilised mini-buses.

Reduction or more effective use of subsidies is a goal of Public Administrations that have funded ARTS demonstrations. Relevant measures are the realisation of savings through better co-ordination of sectors that offer transportation services at their mandate. The harmonisation of rules and the relaxation of administrative regulations, as in the demonstrations that combine school and regular passengers transport, are very important steps towards Rural Transport Efficiency at Minimal Costs. It should be stressed that significant economies of scale can be achieved by the Public Administrations in case where the measures implemented in ARTS are transferred and adopted in other rural areas. Gaining experience and knowledge from the demonstrations is a very strong incentive for Public Bodies to participate in ARTS.

Table 13: ARTS Objectives: Increase Economic Efficiency of Transport and Achieve Rural Transport Efficiency at Minimum Cost (per Stakeholder)

First Level Objective: Increase the Economic Efficiency of Transport Second Level Objective: Rural Transport Efficiency at Minimal Costs <i>Operators: Private Operators</i>			
Table 13: ARTS Objectives: Increase Economic Efficiency of Transport and Achieve Rural Transport Efficiency at Minimum Cost (per Stakeholder)			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Reduce operating and capital costs	To get a reasonable coverage for operational and capital costs	Introduction of new services / increase in frequency of existing services creates new contracts and additional revenue for operators.	SAMKOM, LEPPÄVIRTA, BEALACH, DEVELOPMENT
Increase (PT-) occupancy rates	To reach efficient occupancy rates	RTI makes services more attractive to current users, to new users and visitors /tourists	CYMRU
		Combined school and regular passenger transport on the same vehicle	RUTO

Table 13: ARTS Objectives: Increase Economic Efficiency of Transport and Achieve Rural Transport Efficiency at Minimum Cost (per Stakeholder)

<p>First Level Objective: Increase the Economic Efficiency of Transport Second Level Objective: Rural Transport Efficiency at Minimal Costs</p> <p><i>Operators: Volunteer operators</i></p>			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Reduce operating and capital costs	To get a reasonable coverage for operational and capital costs	Symbolic compensation of drivers	ALMA
		Make better use of existing under-used vehicles	BEALACH

<p>First Level Objective: Increase the Economic Efficiency of Transport Second Level Objective: Rural Transport Efficiency at Minimal Costs</p> <p><i>Operators: Municipal operators</i></p>			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Reduce operating and capital costs	To get a reasonable coverage for operational and capital costs	Make better use of existing under-used vehicles	MESSARA

Table 13: ARTS Objectives: Increase Economic Efficiency of Transport and Achieve Rural Transport Efficiency at Minimum Cost (per Stakeholder)

<p>First Level Objective: Increase the Economic Efficiency of Transport</p> <p>Second Level Objective: Rural Transport Efficiency at Minimal Costs</p> <p><i>Public authorities: All levels</i></p>			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Better transportation services for money spent	Increase the transport supply while keeping subsidies constant	Increase frequency of service by better co-ordination of already existing municipal services	SAMKOM, LEPPÄVIRTA
		Introduce new ways to transport people for less money (evaluate costs per passenger-kilometre, etc.)	ALMA
	Decrease the cost of municipal employees transportation while maintaining the same level of service	Reduce the number of house calls of social services workers while increasing the number of visits to the central Social Services office	LEPPÄVIRTA
Rural transport efficiency at minimum cost	Achieve lower operating and capital costs	Use previously under-utilised vehicles	MESSARA
	Create a well-integrated network of services	Facilitate the demonstrations through funding, cooperation between administrations and streamlining of procedures	ALL
	Transfer the experience of demonstrations to other rural areas	Involvement in ARTS	ALL

Table 13 ARTS Objectives: Increase Economic Efficiency of Transport and Achieve Rural Transport Efficiency at Minimum Cost (per Stakeholder)

4.3.2.2 ARTS: First Level Objective: Support Rural Development

ARTS Second Level Objective: Increase Quality of Rural Life

The second top-level objective of the ARTS demonstrations is to Support Rural Development. Rural areas have been losing population and jobs to the urban centres for many years. Reversal of this trend has been a permanent theme of national and European regional policies.

Creation of new jobs in rural areas in the manufacturing or service sector has been an extremely difficult proposition. The main attraction of the rural areas is the quality of life.

An improvement of the quality of life of rural residents will enhance the desirability of rural areas as places to live. Population will be retained and a reverse migration from urban centres is a possibility in the future if rural areas continue to improve the quality of life.

Transportation plays a key role for maintaining high standards of living. Three third level objectives directly related to Transportation are central to the improvement of the quality of rural life:

- (1) Improved availability of Transport Services
- (2) Improved travel experience
- (3) Improved Traffic Safety

The availability of Transport Services which allow users to move easily within the area where they live is a key factor affecting the quality of everyday life. When users are able to travel in comfort, safety, without delays, friendly personal service and with information available to their native language, then they perceive travelling on PT as an agreeable experience that contributes to a better way of life.

These Third Level objectives are a prime concern of all users and all levels of Public Bodies. Indeed the main objective of elected government at the local and regional level is to improve the quality of life of their constituents. Funding the demonstrations is an important mechanism whereby residents can experience immediate changes in the comfort and convenience of their daily movements.

The quality of life can be improved if two lower level objectives, not directly related to transportation, are achieved:

- (4) Increased community integration and strengthening of the social bonds
- (5) Support to local businesses

Rural inhabitants often experience high levels of isolation. The situation is more acute for the elderly and disabled and contributes to a sense of deterioration in the quality of life. Similarly young people in rural areas feel they have limited access to entertainment or social activities.

The demonstrations in ARTS contribute significantly to alleviating these feelings of isolation among users. Even offering more opportunities to go shopping is important because the grocery store in the central village often functions as a meeting point.

In demonstrations with volunteer drivers from inside the community, the strengthening of the social ties is even more prominent.

One rural group that commonly experiences exclusion comprises speakers of a minority language. Some Local and Regional Administrations participate in ARTS with the objective of strengthening the

degree of participation and inclusion in civil life of such people in rural areas. For these groups having information about transport available in their native language greatly enhances the quality of their life.

Support for local businesses is essential, not only for the retention and possible creation of new jobs, but also for the availability of goods and services for rural residents. When a grocery store in a small village closes, people have to travel even for their basic shopping. Having shops and services within easy reach is a crucial element for a better experience of everyday living.

Table 14: ARTS Objectives: Support Rural Development and Increase Quality of Rural Life through Improved Availability of Transport Services and Better Travel Experience (per Stakeholder)

First Level Objective: Support Rural Development			
Second Level Objective: Increase Quality of Rural Life			
<i>Users: All</i>			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improve availability of Transport Services	To guarantee access to centres, shops, health services, social activities, schools etc.	Introduction of new local services where no publicly available service existed	ALMA, BEALACH, MESSARA
		Implementing demand-responsive and door-to-door transport services	ALMA, BEALACH, SAMKOM, LEPPÄVIRTA
		Combine school and regular passenger transport	RUTO, MESSARA
	To have sufficient and affordable PT-services available for trips between x and y including flexibility of routes	Implementing demand-responsive and door-to-door transport services	ALMA, BEALACH, SAMKOM, LEPPÄVIRTA
		Increase frequency of service by better co-ordination of already existing municipal services	SAMKOM, LEPPÄVIRTA, RUTO
		Lower fares in areas where taxis are the only PT mode available	RUTO, MESSARA
		Keep fares at the level of existing PT system	ALMA, SAMKOM, LEPPÄVIRTA
		Real-time information about service makes planning trips easier	CYMRU
Improve travel experience	Increase users satisfaction with all aspects of travelling experience	Less waiting time at stops compared to the pre-ARTS situation	CYMRU MESSARA DEVELOPMENT (students)
		More information available about the availability of services	ALL
		Better service when ordering a trip through qualified personnel at a TDC	SAMKOM, LEPPÄVIRTA, BEALACH
		Easy, uncomplicated and personal reservation of services	ALMA

Table 14: ARTS Objectives: Support Rural Development and Increase Quality of Rural Life through Improved Availability of Transport Services and Better Travel Experience (per Stakeholder)

First Level Objective: Support Rural Development Second Level Objective: Increase Quality of Rural Life <i>Public authorities: Municipal Governments (local level)</i>			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improve availability of Transport Services	To guarantee access to centres, shops, health services, social activities, schools etc.	Funding for the introduction of new local services where no publicly available service existed	ALMA, MESSARA
		Funding for implementing demand-responsive and door-to-door transport services	ALMA, SAMKOM, LEPPÄVIRTA
		Funding for the introduction of School Transportation Services	DEVELOPMENT, MESSARA
		Additional Support for the implementation of the services (donating office room, supplies)	ALMA, BEALACH

First Level Objective: Support Rural Development Second Level Objective: Increase Quality of Rural Life <i>Public authorities: Regional Authorities</i>			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improve availability of Transport Services	To guarantee access to centres, shops, health services, social activities, schools etc.	Funding for implementing demand-responsive and door-to-door transport services	ALMA, LEPPÄVIRTA
		Facilitate co-operation between different departments of Regional Government or separate authorities at the regional level (Education, Transportation)	RUTO, MESSARA
Improve travel experience	Increased users satisfaction with all aspects of	Fund real-time information computer system	CYMRU

	travelling experience		
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Table 14: ARTS Objectives: Support Rural Development and Increase Quality of Rural Life through Improved Availability of Transport Services and Better Travel Experience (per Stakeholder)

First Level Objective: Support Rural Development Second Level Objective: Increase Quality of Rural Life <i>Public authorities: National Governments</i>			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improve availability of Transport Services	To guarantee access to centres, shops, health services, social activities, schools etc.	Funding for implementing demand-responsive and door-to-door transport services	BEALACH

First Level Objective: Support Rural Development Second Level Objective: Increase Quality of Rural Life <i>Others: Parents, Public Transportation User Groups</i>			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improve availability of Transport Services	To guarantee access to schools	Introduction of school transportation saves parents from having to drive their children to school	DEVELOPMENT, MESSARA
	To guarantee access to centres, shops, health services, social activities, schools etc.	Users groups participate in the decision process for the organisation of transportation	SAMKOM

Table 14 ARTS Objectives: Support Rural Development and Increase Quality of Rural Life through Improved Availability of Transport Services and Better Travel Experience (per Stakeholder)

Table 15: ARTS Objectives: Support Rural Development and Increase Quality of Rural Life with Strengthening of Social Bonds (per Stakeholder)

First Level Objective: Support Rural Development
Second Level Objective: Increase Quality of Rural Life

Users: All

Third Level Objective	Fourth Level Objective	Measures	Demonstrations
To increase community integration, social bonds etc.	To guarantee accessibility to centres, shops, health services, social activities, schools etc.	Introduction of flexible on-demand services	ALMA, BEALACH, LEPPÄVIRTA
		Increase in the capacity, availability (frequency) of already existing services.	RUTO, SAMKOM
		Increase in the availability and reliability of information about existing services.	CYMRU
		Introduction of new services where none previously existed	MESSARA, DEVELOPMENT

First Level Objective: Support Rural Development
Second Level Objective: Increase Quality of Rural Life

Operators: Volunteers

Third Level Objective	Fourth Level Objective	Measures	Demonstrations
To increase community integration, social bonds etc.	To increase the sense of contributing to the community	Services run by volunteers living in the community	ALMA
	To promote other social services and public interest activities of Community groups	Subcontract the resources (personnel, vehicles) of Volunteer Groups offering social care, organising cultural activities for the operation of the demonstration services.	BEALACH

Table 15: ARTS Objectives: Support Rural Development and Increase Quality of Rural Life with Strengthening of Social Bonds (per Stakeholder)

First Level Objective: Support Rural Development Second Level Objective: Increase Quality of Rural Life <u>Public authorities:</u> All levels			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
To increase community integration, social bonds etc.	To guarantee accessibility to centres, shops, health services, social activities, schools etc.	Introduction of flexible on-demand services allows easier access to local shops.	ALMA, BEALACH, LEPPÄVIRTA
		Increase in the capacity, availability (frequency) of already existing services increases and makes easier the access to local shops.	RUTO, SAMKOM
		Introduction of new services where none previously existed makes easier the access to schools.	MESSARA, DEVELOPMENT
		Offer accessibility to organised social and health services for sensitive population groups (elderly)	ALMA, BEALACH, SAMKOM, LEPPÄVIRTA, MESSARA
		Bi-lingual information about transportation services	BEALACH, CYMRU

Table 15 ARTS Objectives: Support Rural Development and Increase Quality of Rural Life with Strengthening of Social Bonds (per Stakeholder)

Table 16: ARTS Objectives: Support Rural Development and Increase Quality of Rural Life by Improving Traffic Safety (per Stakeholder)

First Level Objective: Support Rural Development
Second Level Objective: Increase Quality of Rural Life

Users: Students

Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Improve traffic safety	To increase the safety of user groups more at risk	Introduction of on-demand door-to-door services increases the safety of elderly passengers	ALMA, BEALACH, SAMKOM, LEPPÄVIRTA
		Introduction of dedicated school transport increases the safety of students by reducing the need for transfers between transport modes.	DEVELOPMENT, MESSARA

Table 16 ARTS Objectives: Support Rural Development and Increase Quality of Rural Life by Improving Traffic Safety (per Stakeholder)

Table 17: ARTS Objectives: Support Rural Development and Increase Quality of Rural Life by Supporting Local Businesses (per Stakeholder)

First Level Objective: Support Rural Development Second Level Objective: Increase Quality of Rural Life <i>Public authorities: All levels</i>			
Third Level Objective	Fourth Level Objective	Measures	Demonstrations
Support local businesses	To guarantee access to shops and locally provided services	Introduction of demonstration services	ALMA, BEALACH, SAMKOM, LEPPÄVIRTA, CYMRU, RUTO, MESSARA
	To increase revenues and cost coverage for local operators	Sub-contract the operation of demonstrations to local transport operators	BEALACH, SAMKOM, LEPPÄVIRTA, RUTO
	To create a stable environment conducive to long-term planning and investment on part of the operators	Co-operation between municipal sectors that fund transportation services for different groups	SAMKOM, LEPPÄVIRTA

Table 17 ARTS Objectives: Support Rural Development and Increase Quality of Rural Life by Supporting Local Businesses (per Stakeholder)

4.3.3 Pre-design Phase: Expected Impacts

From the moment the demonstrations start they will influence the life, activities and daily patterns of all those who are involved either as users or in their capacity as stakeholders. Some of these impacts will become apparent immediately while others will appear in the longer term.

Examining likely impacts on the different groups of stakeholders, we expect that the results of the demonstrations will be experienced faster and more directly by users. The availability of new services or the increased supply of transport compared with the past will be translated into more shopping trips, increased use of general services and more social visits. Some other users will be able to reserve rides from their doorstep at the time they wish, while others will experience friendly service. It will become possible for some to obtain travel information in their own language. From the very first day students will be able to travel to school without changing between trains and public buses, while in another country, students will be sharing their bus with regular passengers.

The impact of the demonstrations on operators will be evident in the medium-term. Most of them will gradually increase revenues and improve cost coverage. As patronage of the services they operate increases, capacity utilisation will also increase bringing an improvement to their bottom line.

For the public bodies, the impacts of the demonstrations will be long-term. In fact, all Public Authorities view the demonstration in their area as an experiment. If it proves successful, then they will transfer the measures to other areas. In this case the results will reach a larger population and the desired impacts will be substantially increased. For example, while some local authorities will see better results from the money they spent on the demonstration, regional authorities will only achieve economies of scale only when similar measures are widely adopted.

In Greece and Hungary parents will be saved from travelling twice a day to the school their children attend. In Austria some parents do not have to bring their children to the school bus stop and back home again. In Sweden and Ireland user associations will be able to participate in the decision process about transportation matters which affect them directly.

Table 18: ARTS Expected Impacts (per Stakeholder)

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
USERS	<ul style="list-style-type: none"> • Availability of a functional and convenient service for first time • Lower cost of transportation • Better accessibility to goods and services supply destinations • Reduced isolation and less dependence on neighbours and family members for trips • Improvement of overall quality of life 	<ul style="list-style-type: none"> • Introduction of services where none previously existed • Better physical access for disabled passengers • Availability of bi-lingual travel information • Reduced isolation • Better access to goods and services supply destinations • Improvement of overall quality of life 	<ul style="list-style-type: none"> • Increased accessibility for younger passengers through introduction of special evening service • Better accessibility to goods and services supply destinations • Improvement of overall quality of life 	<ul style="list-style-type: none"> • Availability of more frequent, better-timed services • Better physical access for disabled passengers • Improved phone reservation process by knowledgeable personnel • Increased level of service without increases in fares • Better accessibility to goods and services supply destinations 	<ul style="list-style-type: none"> • Decreased journey and waiting-at-stop time • Availability of bi-lingual travel information • Better access to goods and services supply destinations 	<ul style="list-style-type: none"> • Introduction of services where none previously existed • Reduced isolation and less dependence on neighbours and family • Better accessibility to goods and services supply destinations • Improvement of overall quality of life 	<ul style="list-style-type: none"> • Introduction of services where none previously existed • Less travel and waiting-at-stop times for students • Better accessibility to goods and services supply destinations • Safer travel for the elderly 	<ul style="list-style-type: none"> • Safer travel to school • More and better information about available services
OPERATORS	<ul style="list-style-type: none"> • Small additional income • Improved sense of service to the community 	<ul style="list-style-type: none"> • Better use of existing under-utilised vehicles • Better cost coverage by generating new revenue 	<ul style="list-style-type: none"> • Better cost coverage by generating new revenue and higher occupancy rates 	<ul style="list-style-type: none"> • Better cost coverage by generating new revenue and higher occupancy rates • Stable environment encouraging planning and sound investments 	<ul style="list-style-type: none"> • Better cost coverage by generating new revenue and higher occupancy rates 	<ul style="list-style-type: none"> • Better cost coverage by generating new revenue 	<ul style="list-style-type: none"> • Municipalities become operators • Better use of existing under-utilised vehicles 	<ul style="list-style-type: none"> • Better cost coverage by generating new revenue and higher occupancy rates

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
PUBLIC BODIES	<ul style="list-style-type: none"> Strengthening the social bond in the community Lower cost of transportation Improvement of quality of life for citizens 	<ul style="list-style-type: none"> Innovative ways to overcome legal and administrative barriers Transferability of model to other areas Improvement of quality of life for citizens 	<ul style="list-style-type: none"> Better value for money for transportation services funded Innovative ways to overcome legal and administrative barriers 	<ul style="list-style-type: none"> Better value for money for transportation services funded Decreased need for social services to make home-aid visits Acquired experience of managing a DRT system serves as model Improvement of quality of life for citizens 	<ul style="list-style-type: none"> Better value for money for transportation services funded Innovative ways to overcome legal and administrative barriers 	<ul style="list-style-type: none"> Innovative ways to overcome legal and administrative barriers Improvement of quality of life for citizens 	<ul style="list-style-type: none"> Better value for money for publicly funded school transport Municipalities resume competencies for school transport Acquired experience of operating PT services Improvement of quality of life for citizens 	<ul style="list-style-type: none"> Organised school transport to new consolidated schools more cost effective than keeping thinly attended schools in operation Improvement of quality of life for citizens
OTHERS	<ul style="list-style-type: none"> Innovative ways to overcome legal and administrative barriers 	<ul style="list-style-type: none"> Users groups participate in transport policy decision making 	<ul style="list-style-type: none"> Users group participate in transport policy decision making 				<ul style="list-style-type: none"> Parents relieved from driving children to school 	<ul style="list-style-type: none"> Parents saved from driving children to school

Table 18 ARTS Expected Impacts (per Stakeholder)

4.3.4 Pre-design Phase: Indicators

The final step of the Pre-design phase calls for the assignment of indicators to the fourth level evaluation objectives. By measuring the values of the indicators before and after the demonstrations the results will be assessed. To facilitate the comparison between demonstrations a set of core indicators needs to be measured across all sites. This set was presented in Chapter 4.2.7.6.

Except the set of common indicators each demonstration will collect data that will be used to assess their own specific impacts. These indicators that were proposed independently by each demonstration we have categorised them according to stakeholder. It is interesting to note the similarities between these indicators, although they have been proposed by different demonstrations to evaluate their own special characteristics.

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
Regular Users	Number of trips per day	Number of new services.		Average number of services during five weekdays		Number of new services per origin and destination	Frequency of new services	
		The number of passengers (elderly, disabled, young, working at home) carried per type of destination and trip purpose	Number of passenger/week			Number of visits to Health Centres and to Social Centres	Average weekly number of passengers per origin and destination and per trip purpose	
	Number of trips to PT stops per day	The number of passengers per group making connections to longer distance bus services.						
	Number of delivery trips per day	The number of calls from (elderly, disabled, young, working at home) people taken and processed in each language.						
	User Satisfaction: Qualitative responses of passengers, % of delays etc.		User satisfaction	User satisfaction: Suitability of timing	Mean journey times	User satisfaction: Regularity of service	Passenger satisfaction with level of service, location of stops.	

Table 19: ARTS Pre-design Phase Specific Demonstration Indicators: Users

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
				Average distance between home and bus/taxi and destination	Mean waiting times at stop		Distance from bus disembarkation point to the entrance of Seniors Day Activity Centre.	
		Number of accessible vehicles operated.		User satisfaction: Physical access to vehicles.	Degree of vehicle accessibility			
				Height of vehicle threshold		User satisfaction: Safety		
				Facilities to help with embarking - disembarking	Experience of interchange between modes			
		The number of complimentary comments and complaints received from each user group		Rating given by passengers for personal service received when ordering a ride, reaching/departing a vehicle and during the trip	Degree of acceptance of measures implemented / impact on bus use			
		The number and type of leaflets circulated.		Agreement between data and passenger knowledge on available services				
				Average fare paid per trip/person-km		Cost for the user of /km compared with conventional regular PT service		
				Average telephone costs per trip				

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
							<ul style="list-style-type: none"> • Mean waiting time at stops • Mean trip time 	
Students								Utilisation of school-buses
							Satisfaction with service (punctuality, comfort of service, seating availability)	
								Changes of the average transport cost per pupil
								Traffic safety indicators (Changes of the number of personal injury accidents on school routes)

Table 19 ARTS Pre-design Phase Specific Demonstration Indicators: Users

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
Operators	Number of volunteer drivers	Number of new services.				Total number and population affected by new services	Number of new services.	
		Breakdown of the types of passengers carried.	Passenger/trip			Total number of regular passengers per origin and destination	Total number of passengers transported (per day, week, month, demo life)	
			<ul style="list-style-type: none"> Passenger/operated trip Operated hours/week/vehicle 		Changes in patronage	Occupancy rates in previous services and in integrated regular-school services for the same lines.	Average occupancy rates by day of the week and route	
					Mean waiting times at stop Mean journey times		On-time performance	
	Amounts of compensation of volunteer drivers per km	<ul style="list-style-type: none"> Cost of operating services Cost of contracts 						
		Amount of new revenue generated.		Difference between revenues and operational and capital costs				Changes in revenue
	<ul style="list-style-type: none"> Costs / trip Costs / km Costs / passenger 							<ul style="list-style-type: none"> /vehicle-km /vehicle /passenger-km

Table 20: ARTS Pre-design Phase Specific Demonstration Indicators: Operators								
	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
	Increasing possibilities / trips for user (target groups)	Breakdown of the number of passengers making bookings, cancelling bookings, being refused due to capacity problems, being carried and making connections						
		Number of complimentary comments and complaints received from passengers.			<ul style="list-style-type: none"> • Degree of vehicle accessibility • User perceptions of ease of interchange • Improvements in access to such services 		Passenger satisfaction with service (punctuality, comfort of service, seating availability, frequency, operating hours, locations of stops)	
				Operators acceptance	Degree of acceptance of measures implemented / impact on bus use			
				Operators´ trust in future options	Experience of interchange between modes			

Table 20 ARTS Pre-design Phase Specific Demonstration Indicators: Operators

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
Public Bodies		Number and type of new services and operators involved.				Number of new services per origin and destination		
		Breakdown of the types of passengers carried in the Conamara Gaeltacht				Increase in lines, passengers or area covered by PT services		
		<ul style="list-style-type: none"> • Costs / trip • Costs / km • Costs / passenger 					Cost per passenger	
		Level of subsidies					Total subsidy (school transport funds successfully claimed) / Total cost	Cost reduction
			Subsidy /passenger-km	Public subsidy per person trip /passenger-km.				
		Number of complimentary comments and complaints received from residents of the Conamara Gaeltacht.				Users and school opinions	Perception of service within municipal sectors, public opinion and inhabitants of Municipality of Rouvas	
		Amount and type of information available in Irish.			Simplicity of information (do people understand how to access the RTI?)			

Table 21: ARTS Pre-design Phase Specific Demonstration Indicators: Public Bodies								
	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
		Number of references to Bealach in Irish language media.			Success of advertising			
		Take up of similar services in other Gaeltacht areas.				Competence among operators, problem		Increased number of innovative transport proposals
		Amount of time spent by staff members on Bealach activities.						
						Comparison between the before and after situation in commercial activity		
				Average number of home visits made by municipal home-aids and related costs				

Table 21 ARTS Pre-design Phase Specific Demonstration Indicators: Public Bodies

Table 22: ARTS Pre-design Phase Specific Demonstration Indicators: Others								
	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
TDC			Coordinated trips/ total trips					
Non-users					Degree of acceptance of measures implemented / impact on bus use			
					Success of advertising			
					Simplicity of information (do people understand how to access the RTI?)			
					Changes in patronage			
Tourists/ Visitors					Level of access to tourist attractions			
School – parents associations						Qualitative school board opinion of consequences of measure	Parent's satisfaction with service (punctuality, comfort of service, seating availability, frequency, operating hours, locations of stops)	

Table 22 ARTS Pre-design Phase Specific Demonstration Indicators: Others

5. Design Phase guidelines

5.1. Introduction

The Design Phase of ARTS is the stage of the project during where the operational characteristics of the demonstrations were verified and the necessary practical steps were determined for the preparation of the sites before full implementation.

At the end of the Pre-design Phase all demonstrations had identified a set of objectives for each stakeholder and the measures required to achieve these objectives. In addition, the possible impacts of these actions on the people involved were forecasted and indicators for measuring the results were selected.

The next step is the transformation of the measures proposed in the pre-design phase into an action plan that must be followed in order to make the demonstrations fully operational. These actions might include:

- Design of routes and selection of stops
- Decisions about timetables, days and hours of operation
- Selection, hiring and training of drivers
- Leasing of vehicles
- Testing of software and hardware
- Printing of information material
- Printing of tickets
- Issuing / obtaining of necessary permits and licences
- Purchasing automobile and liability insurance
- Test running of the services

Demonstrations offering services for the first time had a more difficult and complex task ahead of them compared to those that involved just expansion or re-organisation of already operating services.

The Guidelines provide general advice on the preparation of the demonstrations and suggest possible ways to tackle practical problems. Certainly the most important decisions were made by the organisers and operators of demonstrations at local level.

5.2. Common Issues

- Build a broad coalition of support

Building community coalitions in support of your demonstration is perhaps the most critical factor for its success. Members of the community will be the passengers riding the demonstration buses: they will rely upon your services for their medical appointments; they will need to be sure that when taking your mini-van they will get to work on-time; that when they call for a volunteer they will be picked by a polite person with a clean car; that they can trust your schedule to ensure a time-saving connection with the train. And once it has been

formed, don't forget to maintain the coalition and keep it alive for at least the life of the demonstrations.

- Review your available resources or achieve as much as possible with what is available

Most demonstrations in ARTS are based on limited resources. The amount of available funding is not enough to support radical changes. Purchasing new vehicles or hiring additional drivers is not always possible. The principle behind ARTS is to demonstrate the most effective use of existing resources with only limited additional capital inputs by means of innovative design, better co-ordination and skilful by-passing of existing barriers.

Therefore operational measures must be realistic and achievable. Furthermore, all active participants must agree that the goals can be attained within the available budget. Demonstrations should be thoroughly presented to user groups so as to forestall unrealistic expectations. Users, for example, might wish to have on-demand services that now are offered until 6 p.m. extended until midnight. This might require hiring an extra driver or extending an existing contract, at a cost which cannot be met within the existing demonstration budget.

- Prepare your organisation for the impact that the demo will have

Associated partners should prepare their organizations for the changes that the demonstration will bring about. Key staff should be kept informed about the demonstration and procedures that need to be modified for the duration of the demo should be thoroughly explained. A short meeting can be arranged with all personnel involved with the demo which should also be attended by a representative of the National Partner Responsible. The person who serves as the contact point between the Associated Partner and the ARTS consortium should make a short presentation of ARTS and the demonstration to be implemented. Task definitions should be explained to the personnel. The need for timely collection of data as it becomes available should be suitably stressed.

Particular attention should be paid in cases where the demonstration is connected with radical changes in the operational procedures of the service provider as in the case of introduction of new technologies for electronic tracking and real-time dispatch of vehicles.

- Develop a marketing strategy

Proper marketing of the demo will greatly enhance the chances for its success. Prospective customers need to know about the service and how to access information about it.

It is important to develop a marketing strategy. The first step is to decide whether your advertising campaign should be conducted only at the design phase of the demo or at two stages: before and during implementation. This question is directly related to the funds available for advertising.

Some promotional ideas are:

- Publish leaflets and brochures with schedule information, route maps and analytical information about booking procedures and fare structures.
 - Distribute your information material freely to local stores, cafes, churches, libraries and other highly accessible public places.
 - Participate in local events in order to promote and advertise the demonstration.
 - Establish a telephone line for information
 - Build a web site or submit information to local and regional web sites
 - Display service schedules on public boards in stations, stop shelters, checkpoints and interchanges
 - Advertise in the local media (newspaper, radio and TV station)
 - Conduct a direct mailing campaign
- And finally don't forget to evaluate the results of your marketing efforts

5.2.1 Operator Issues

- For each demonstration, operational details must be decided in close collaboration with the Associated Partner. If the Associated Partner is not the operator offering the services then the transport provider must be included in the consultation. The operator has the experience of running the system on a daily basis and is in position to have a better knowledge of the details.
- If the demo proposes the creation of a new line, the planning must be based on the characteristics of the area. Conducting a full origin – destination study is not meaningful for a rural area and it is likely to be too costly. It is more helpful to use conventional methods, based on existing data and the experience of the operator.
- When a new line is designed, the mobility characteristics that have been collected through surveys (WP5) may be used to determine the coverage area, the service corridors and the frequency of service.
- Again consider carefully how much service to offer and how much you can afford. Do not stretch the limits of your organization by planning for unrealistically long service hours or high-frequency schedules.
- Route planning, scheduling, and driver assignments are all responsibilities of the operator in demonstrations involving regular transport or on-demand services.
- The operator also should:
 - plan for contingencies (absenteeism, employee illness, bad weather)
 - have in place a sound vehicle maintenance program
 - have established cash-handling procedures for the driver(s)
- Essential for the evaluation of demos is the existence of a policy that requires recording and tracking of customer complaints.

5.2.2 On-demand service issues

- A very important issue here is the unpredictability of demand when on-demand services are expanding or added for the first time to a transport system. An adverse consequence might

be that so many customers call to reserve a trip that you don't have enough vehicles to perform the service.

- A solution is to attempt to predict demand based on reliable historical data of areas with similar demographics and mobility patterns. Another approach is to proceed cautiously: start with a limited area and few vehicles and expand gradually in terms of geographical scope and capacity.
- Pay attention to user needs when you set operating hours, but keep in mind your capacity constraints. A clear advance reservation policy should be in place: one or two days is a reasonable time period for rural areas and systems with few vehicles. Accepting a same day reservations or those just a few hours in advance requires a computerised system at the dispatch centre as well as positional and communication devices on the vehicle.
- An unambiguous policy for "no-shows" should be adopted and communicated to users. Generally an effort should be made to steer the more regular customers towards subscriptions. Subscriptions make the planning function easier and contribute to the quality of service.
- These issues are most important for operators with no experience with any form of on-demand services. A careful assessment of the mobility characteristics of the area should be made before deciding on the degree of route and schedule flexibility.

5.2.3 Dispatching Centre Issues

The dispatch centre may be a local or regional TDC or part of the operator's organisation.

- The operator of the TDC, if different from the Associated Partner, should be considered a stakeholder and included in the design process. A person from the TDC or from the dispatch office should be nominated as the contact for demonstration purposes. He/she must be briefed on the details of the demo and the role of the dispatch centre.
- New customers will increase the workload of telephone operators and scheduling personnel. Make sure that calls are not being put "on-hold" for more than 3 minutes. The characteristics of the new service including fare structure and operating hours must be communicated to all staff handling reservations.

5.2.4 Combined school - general public transportation issues

- The planning process requires close co-operation with parents, teachers and officials from the local or regional level education authority. Attitude of parents towards "co-mingling" on vehicles must be assessed.
- A key question that needs to be answered before implementing a demo that combines student and general public transport is: "Who has the ultimate responsibility?" After the liability issue is resolved the insurance question becomes clear.
- Vehicles should meet the stricter safety requirements for student transport.
- When planning the service it is essential to assess the flexibility of school operating hours each educational level. If school authorities are willing to move the class starting and finish hours your scheduling options increase.

- When designing a route, keep a balance between the number of stops and the need to transport all students.
- Make an effort to keep total trip times reasonable. Routes which are too long or have too many stops for picking up / dropping off students are not attractive for regular passengers. Again it is better to develop the demo gradually and learn by the experience.
- Review the potential for a “guaranteed seat” policy for the general public: it will attract passengers but you must be able to project demand within a small margin of error for each route.

5.2.5 Combined social sector and/or health sector transport with general public and/or school transport issues

- A major issue here is the potential friction that can be developed between the different departments of the same administration, because they don't wish to relinquish control over the way their clients are transported. You may have already identified this barrier in the matrix, so you should be able to develop a suitable approach early on. This may be a formal agreement between all parties or might be handled by asking the administration director to designate one department to take the overall responsibility for the demonstration.

Otherwise, the same suggestions as in 5.2.4 apply.

5.2.6 New hardware and software issues

Demonstrations that will mean the adoption of new technologies (hardware and software) should draft a technology adoption plan that addresses the following tasks:

- Identify your needs and develop specifications
- Identify potential vendors and ask for proposals
- Evaluate the proposals and draft a contract with the winner
- Install and test the hardware and/or software
- Allow for a training period and adaptation to the new technology

5.2.7 Volunteer schemes issues

- If you start a new volunteer transport scheme you should:
- Find an insurer that provides coverage for this type of activity at rates that the demo can afford
- Resolve any taxation or legal issues that you have identified
- Establish eligibility criteria for volunteer drivers, e.g. valid driver licence, clean driver record, age, no criminal record, ownership of a well-maintained vehicle.
- Recruit volunteers from the community
- Decide the operational characteristics of the demo: operating hours, advanced reservation, handling of “no-shows”, record keeping and compensation calculation method.
- Explain the operating policy to recruits and stress that they should keep their car clean, be polite and offer assistance and drive carefully while obeying traffic laws.

6. Implementation phase – Demonstrations description

6.1. Preface

This part of the Deliverable D3 refers to the detailed description of the demonstration actions. The idea is that the reader will be in position to form a complete idea about:

- the external environment where the action takes place
- the operational details of the services

In other words, by reading this part of the report, any third person should be able to have a clear understanding of where the demonstration takes place, who runs it, who provides the funds, who has the overall responsibility, who is running the buses, taxis or other vehicles, who rides on them and how much they pay, what times of the day services operate and what a passenger has to do in order to reserve a ride or get information about the next bus.

To aid the reader maps, pictures, scanned timetables and other graphic material are included in the Annex.

The time frame of this description is set at the first day that the demonstrations commenced operation.

In order to provide an overview of the demonstrations, we have attempted to categorise them according to key characteristics. The authors of this report hope that in this way the many similarities and dissimilarities of the demonstration actions will become clearer.

6.2. Introduction

The objective of this part of the report is to present all aspects of the demonstrations as they have been implemented. All the information refers to the first day of operation.

Since then, all demonstrations have experienced changes either in operational details or in the objectives. This is easy to understand since the actions take place in real life and it is impossible to follow the exact plan or blueprint as it was set out at the Pre-design and Design phases of ARTS.

In the attempt to describe the demonstrations and at the same time to provide a basis of comparison, a set of focal details was defined. This core set of data was provided by all demonstrations.

The structure of public administration varies considerably across Europe, as well as the geographical areas corresponding to each administrative unit.

For example, at the local level, a Municipality is a common administrative entity throughout Europe but does not exist in Ireland or the UK where there are City Councils. In rural areas a Municipality usually consists of one or more settlements one of which is the most populous and seat of the Municipal Council.

At higher levels of administrative divisions we have Prefectures (Greece), Counties (Sweden), while a County in Ireland is closer to a District (Finland). The highest level beyond the State level could be a Province, a District, a Region or an Autonomous Region (Galicia).

The fact that these terms can be used to denote both the Administrative Unit and the territory further complicates the analysis.

At the European level these administrative entities have different responsibilities with regard to Transportation and the provision of social and health services. For example a Municipality in Finland or Sweden has considerably more responsibilities and offers more services than a Municipality in Greece. The competencies of the intermediate bodies, above the Municipality level, are also very different; in some countries they include only supervision; in others they have legislative and funding powers.

The organisation of Education also varies within Europe. Although the basic levels of public education are similar, the administrative structures are very different. In some countries, regions or even municipalities can decide about educational matters, while in others, only the central government can set the policy.

An attempt has been made to explain the national education structure and administration where it is needed.

All demonstrations that entered the Implementation Phase completed a National Report with the detailed descriptions of the actions to be undertaken. A description of the data collected is given in Section 6.3 of this document.

The National Reports are included in the Annex.

A summary of the demonstration characteristics across all sites is presented in Chapter 6.4.

6.3. Description of demonstrations – Key characteristics

This section provides the broad context for the data that all ARTS demonstrations reported.

6.3.1 Demonstration Area

The demonstration area is the administrative area where the demonstration takes place.

In most cases the demonstration area is the same as the service area, i.e. the geographical space which contains all the points where services are offered. In other words, the demonstration area contains all points that can be reached using the vehicles of the demonstration.

In a few cases services are only offered in some of the localities within a larger administrative area, i.e. the demonstration area is larger than the service areas and contains these. If a service area extends over two or more administrative units then the demonstration area consists of all these units.

6.3.2 Characteristics of the demonstration area

The following data describe the demonstration area from the viewpoint of the supply and demand of Transport:

- Area (square kilometres)
- Population, age structure
- Settlement structure
- Terrain (mountainous, flat, rivers, etc.)

- Condition of road network
- Main economic activities
- Tourism (sites, attraction, seasonality)
- Unemployment rate

Area and population are readily available statistical data, once the demonstration area has been defined as equivalent to an administrative unit.

Terrain is a qualitative characteristic and is related to the provision of transportation services, as is the condition of the roads. Occasionally roads may be so narrow that larger vehicles (buses) cannot pass and this is important information for designing the demonstration.

Main economic activities and unemployment are necessary background information. Tourism is considered an important activity for ARTS, since visitors to an area are potential users of the demonstration services.

6.3.3 Maps of the demonstration area

Each map of the demonstration area presents different layers of information in the appropriate scales:

1. Map of the demonstration area presents the location in relation to the whole country or district.
2. Map of the demonstration area with the following information depicted:
 - Administrative limits (Important when the demonstrations extends over 2 or more municipalities)
 - Settlements
 - Main trip attractors:
 - Educational facilities
 - Health care facilities
 - Commercial activity, including banking
 - Government offices
 - Tourism attractions
 - Other points of interest
 - Points of access to the main PT network (bus stations, train stations)

6.3.4 Service Characteristics

6.3.4.1 Service Area Map

This is the map of the service area as defined in 6.3.1

On the map each route of the service(s) is marked. Stops, transfer points, connections with the rest of the PT system, central stations and depots are also marked on each route.

In case of on-demand services, the borders of the areas served are drawn. The locations of checkpoints for service lines or on-demand systems are included. The position of the Travel Dispatch Centre if one exists is marked on the map.

6.3.4.2 Operational characteristics

The operational characteristics of the services include:

Timetable

Most of the demonstrations operate to some form of timetable. In cases where a detailed timetable with stops is not available, then the days/hours of operation, frequency (weekdays /weekends /holidays), are included.

Conventional timetables are not relevant for demonstrations where services are on-demand and door-to-door. Information is given about operating hours (start–finish of service) and frequency during the week.

Stops

Relevant information here includes the number of stops for regular fixed-route services and checkpoints for on-demand services.

6.3.4.3 Vehicle(s) in Use

The characteristics of the vehicles are reported by route or service area and include: the number of vehicles/ capacity/years in use/accessibility.

The number of vehicles is important criterion for the comparison of the demonstrations, as is the seating capacity.

6.3.4.4 Fares

Information on fares includes not only the amount paid for a regular / return fare, but also methods of payment, discounts, differentiation by user group, availability of monthly passes and through ticketing availability.

6.3.5 Stakeholders

The classification scheme that was introduced in the Pre-Design Phase is used again here. Stakeholders belong to 4 categories: Users, Operators, Public Bodies and Others. Emphasis is put on the detailed description of operators and Public Bodies.

6.3.5.1 Operator(s)

All the operators participating in the demo are listed with a description of their involvement in the demonstration.

A brief profile of the operator concerning size, fleet and network is included. The competition environment is also of interest: how many private operators exist in the area and how they compete for passengers.

6.3.5.2 Public Bodies

Public Authorities are involved in all ARTS demonstrations in various capacities.

The description starts with a reference to their competencies in transportation. If the transportation competencies are divided between different departments within the same administration, the role of each one is explained, e.g. education department is responsible for every aspect of school transport. Problems arising from lack of collaboration between departments encountered at the design phase are also reported.

A detailed description of the role of the public authority is given next. The reader is interested in what exactly the officials did for the demo: who had the idea, who had the authority to grant permits, who chose the route and the settlements to be served, who provided the funding or chose the operator through tendering.

A special paragraph is devoted to the issue of tendering in order to explain: tendering procedures, method of bidding, terms of contract (e.g. required level of service), duration of contract, etc.

6.3.5.3 Others

Reference is made here to those stakeholders who were active in the planning and preparation of the demonstration or who are directly involved in the operation of the services, but do not belong to any of the other three stakeholder groups.

6.3.6 Special Categories

6.3.6.1 School transportation

Transportation of pupils and students is a theme common to many demonstrations; therefore it is treated in detail.

Information included in this part concerns: the schools served, the type (elementary, secondary etc.), their locations and the settlements where students live.

The relevant public authority is identified and its responsibilities in school transport are explained.

Details include:

- Selection of operator: direct contracting, tendering
- Funding: eligibility, method of payment of subsidies (directly to operators, tendering, vouchers to students, and cash payments to eligible parents)
- Regulations: about transporting regular passengers with students, about an adult representing the school being present on board at all times

The focus here is on the specific involvement of the competent authority in the demo, on the ways funds were distributed and on which regulations were followed.

Other points discussed are: where students are picked up or dropped off in relation with the place where they live and how far they have to walk, whether the service keeps a fixed timetable and what are the waiting times at stops.

6.3.6.2 Social Sector transportation

Social services sectors of municipalities transport their clients in several ARTS demonstrations. This fact clearly justifies an in-depth presentation of these cases.

The regular procedures followed by the Social Services follow when they provide transportation to their clients are described in this section of the report together with information about who is entitled to these services and how much users pay, how the operator providing transportation is selected and how the services included in the demonstration are funded.

The extent of the involvement of the relevant department or other official body in the demo is discussed. Reference is made to those demonstrations that provide regular access to Day Care Activity Centres for the elderly or to health facilities.

6.3.6.3 On-demand services

An important characteristic of on-demand services is their mode of operation:

- Door-to-door services may have many origins and many destinations. In other words, inside the service area, the passenger can request a ride from any point to any point, exactly as in a taxi. The only restriction is that both points should be inside the service area.
- Door-to-curb services may have many origins but their destinations include some fixed points where the vehicle must stop. These are the so-called checkpoints, examples of which might be a hospital or a local landmark. The checkpoints are also scheduled on a fixed timetable.
- Route deviation services follow a fixed route with checkpoints where the vehicle must stop within a certain time window on each run. Passengers can ask the driver to leave the fixed route to give them access to their desired destination.

Booking procedures and policies:

- Regular method of booking and possible alternatives such as fax or e-mail
- Minimum advance time for reservations (the latest possible time the customer can request a trip)
- Availability of subscriptions for recurring trips
- Policies concerning denial of service for reasons of capacity and policies about no-shows or late appointments

Travel Dispatch Centre:

- Location, operator, provider of funding
- Services offered, personnel, hours of operation
- ICT, method of communicating requests and schedule of pick-ups and drop-offs to drivers

6.3.6.4 Volunteer schemes

Demos relying on volunteers for driving report on the:

- Organisation of the measure (volunteers driving their own or agency vehicles)
- Selection process of volunteers, eligibility criteria (insurance, clean driving record)
- Method of compensation (per trip, gasoline expenses, fixed daily amount)
- Insurance and taxation issues

6.3.6.5 Technology

Demonstrations that exhibit new technology explain:

- How the technology works in principle and how it is used in the demo
- The implementation steps planned including selection of providers
- Expected benefits for the users and operators

6.4. Demonstration characteristics

6.4.1 Introduction

ARTS demonstrations exhibit a variety of characteristics in relation to the mode of transport operation, the status of operators and the dominant group of users that is most likely to benefit from the services.

One clear distinction is between on-demand and fixed-route services. There are 4 demos where the core element is that they offer demand-responsive services: ALMA, SAMKOM, LEPPÄVIRTA and BEALACH; four demonstrations are operated as fixed route services: CYMRU, RUTO, MESSARA and DEVELOPMENT.

This is far from being the only way of classifying the demos and other elements than the mode of operation could be considered as more important.

CYMRU, for example, demonstrates how an automated Traveller Information system can be used in a rural area. In fact this is the only demonstration within ARTS that is centred on the innovative use of technology. Another clear line can be drawn between the technology-heavy Welsh demo and the rest. But CYMRU is not alone in terms of its emphasis on the provision of information, the demonstration in Hungary also sets out to disseminate information effectively about the services offered to interested public groups.

The analysis of this section is based on splitting the demonstrations into two broad categories: (a) demand-responsive services and (b) fixed-route services.

Table 23: Demonstration Summaries

On -Demand	ALMA (Austria)	Door-to-door services provided by volunteers for all trips at any time during the operation hours, used mainly for access to services, shopping trips. To be used by passengers of all ages including the disabled.
	BEALACH (Ireland)	On-demand services provided by volunteer groups and contracted operators and coordinated by a bilingual TDC. Covers the needs of the elderly, disabled, youth when accessing services or making connections to the PT network.
	SAMKOM (Sweden)	Demand responsive services to main villages on the island of Gotland and to interchanges to PT service. The doubling of the previously existing supply was possible by harmonising regulations and fares for different categories of passenger.
	LEPPÄVIRTA (Finland)	On-demand services that allow users to have access to services and shops located in the central town of the Municipality. Cost-savings were realised through the co-operation of the municipal Social and Health Services.
Fixed-route	CYMRU (United Kingdom)	Bilingual Real Time Travel information services (next bus arrival time) provided through SMS messaging, computerised telephone answering and roadside electronic boards on 2 bus lines in Gwynned.
	RUTO (Spain)	Unused capacity on school buses is opened to regular passengers travelling to the central villages of 4 municipalities in rural Galicia.
	MESSARA (Greece)	The council of the small Municipality of Rouvas in Crete undertakes the school transport combined with regular passenger services taking advantage of a new law that liberalises PT.
	DEVELOPMENT (Hungary)	School transportation to nearby town organised for students after closures of schools in rural areas.

Table 23 Demonstration Summaries

6.4.2 Geomorphology of demonstration areas

The demonstration areas in Austria, Spain and Greece are predominantly mountainous, while the Hungarian demo takes place on the flatlands and the Swedish on the almost flat island of Gotland. The other actions are implemented on non-homogeneous terrains including mountains, hills and flat areas. One particularity of the Finnish area is the high proportion of lakes (25% of the total area).

The most populous area covered by a demonstration is the Island of Gotland in Sweden, which is also the biggest in acreage. The Greek demonstration is limited to a comparatively small area. The smallest number of people that has potential access to the services of a demonstration is in Austria. Because of the specific characteristics of the Welsh and Hungarian demos, population and area figures have been omitted. In Hungary, it is impossible to define an area since the demonstration connects two villages with an urban area.

Consequently the most densely populated demonstration area is in Greece and the most sparse in Finland. If, however, the Finnish lakes are excluded from the estimate of total area, the Spanish demonstration area is the least dense.

The way that the population is distributed in terms of building density is important for the organisation of the demonstration services. In all cases there is a town that is the important population centre and is usually the capital of the municipality or other administrative centre. Depending on the size of the demonstration area, the rest of the population lives either in smaller settlements or is widely dispersed in independent housing units, which in agricultural areas are farms. These settlement patterns are not uniform: in Greece there are no dwellings outside built-up areas whereas in rural Spain hamlets with 5-20 inhabitants are common. The population of these centres can represent as much as 50% of the total population of the demonstration areas or can be as low as 15%.

In Ireland the demonstration area includes 4 offshore islands, which constitute separate and compact population entities.

These population centres are the main trip attractors because they are where the banks, shops, education facilities, health and social services are located. Elementary schools and kindergartens can also be found in smaller settlements, whereas secondary schools are more common in the central town. It is difficult to discern a pattern with regard to the supply of health services. In many cases there are doctor practices in smaller settlements while more extensive health care is available in the central town in the form of either Health Centres or Hospitals. Only in Greece do residents of the demo area have to travel outside the municipality where they live in order to have access to medical care.

On the whole, Gotland is the more balanced area in terms of the spatial distribution of services, shopping and educational facilities outside of the main population centres. A good degree of dispersion is also found in Conamara, while RUTO takes place in an area with significant concentration in the main town. The residents of peripheral settlements in the Finnish and Greek demonstrations have to travel to the municipal capital for all of their needs with the exception of basic food supply.

		ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
Geographical characteristics	Terrain	Mountainous	Mountainous Hilly Lakes	Flat	Hilly Lakes	Flat Hilly	Mountainous	Mountainous	Flat
	Number of inhabitants	1.200	12.126	57.300	11.100		7.386	2.324	1.800
	Area (km ²)	108	1.500	3.100	1.519 (of which 380 lakes)		852,3	62,7	321
	Density	11	8	18	7		8	37	5,6
	Distribution of population	3 settlements	1 town (2.000) 20 villages 4 offshore islands Dispersed population	1 town (22.000) 5 villages Dispersed population	1 town (4.750) 2 settlements Dispersed population	9 settlements Dispersed population	1 town (1.528) 3 settlements Dispersed population (66 parishes)	1 town (1.506) 4 Villages	1 town (108.000) 1 village 1.000 1 village 800
Supply side Trip Attractors (*)	Kindergarten	1	Y				Y	1 + 0	
	Primary School	2	30	7 + 33	3 + 9		1 + 2	1 + 0	
	Secondary School		6	4 + 2	1 + 0		1 + 0	1 + 0	
	Third Level centre		2				1 + 0		
	Childcare		Y		Y + 0			1 + 0	
	Bank	2	1	Y + 6	Y + 0		3 + 1	1 + 0	
	Credit Unions		4						
	Grocery	1	Y	Y + 6	Y + 7			1 + 0	
	Liquor stores			Y + 2					
	Shops		Y					1 + 0	
	Health Care	1	Y	Y + 4	Y + 0		1 + 2		
	Hospital		Y						
	Library		Y	Y + 3					
	Post Office	1	22	Y + 3	Y + 0			1 + 0	
Municipal administration	1					1 + 0	1 + 0		

(*): Y: exact number unknown, a + b: a = Central town, b = Other settlements in the demonstration area

Table 24 Characteristics of Demonstration Areas



6.4.3 Socio – economic characteristics of demonstration areas

The demonstration areas exhibit some similarities when the main types of economic activity that takes place are examined, but there is no overall common pattern.

Agriculture is an important factor in the local economies particularly in Greece, Spain, Ireland, Wales, and Hungary and, to some extent, in Finland. In Austria forestry is important but in Sweden there is no employment in agriculture. But these agricultural activities are not the same: in Ireland fishing is important, in Greece and Wales livestock plays a significant role in the local economy. In Spain and Greece many inhabitants supplement their incomes from cash crops (olives, vines) and livestock farming.

Manufacturing is almost universally absent with the exception of Finland and the food processing sector in Hungary.

The service sector is well represented in almost all areas although it is less prominent in Greece and Spain. The largest component of the service sector is tourism. Tourism is very important for all the economies with the exception of Greece and Spain (although these demos take place in wider regions with very developed tourism activities - Crete and Galicia -, they are rare exceptions in that they derive no benefits from this business). The Hungarian demonstration area is another that receives no tourists.

The tourism industry is a driving force for the local economies of Conamara and Gwynned counties and the Island of Gotland where the Irish, Welsh and Swedish demos are implemented. The Finnish demo area is a significant domestic travel destination while tourism is at the developing stages in Klaus (Austria).

Tourists will have the opportunity to use the services demonstrated by CYMRU. The remaining demonstrations are open to use by everybody but are less likely to be used by any more than the stray tourist. Priority in all demonstrations is the need of the permanent residents to improve their mobility and access to services and travel destinations.

Small business and shop ownership is a very common form of self-employment in all demonstration areas. The Island of Gotland has the highest number of small enterprises in Sweden.

Employment in the other service sectors (administration, health, social services) is more prevalent in Sweden, Finland and Ireland.

Commuters represent a significant fraction of the working population in the Austrian and Finnish demo areas.

Unemployment rates range from a low 3,6% in Greece to a high 39,7% for one municipality in the RUTO demonstration area. This wide variation raises some questions about the reliability of unemployment statistics and the methodology of the survey procedures especially in small rural areas. Another important factor is seasonality with respect to jobs in agriculture and tourism. Figures may not be the same in Ireland, Wales and Sweden for winter and summer. Internal migration contributes to seasonal fluctuations in employment: temporal workers in tourism move to the seashore areas of Crete where hotel/restaurant industry is concentrated for 7 months of the year.

Generally the economically active population represents less than 50% of the total in all demo areas. The inactive population consists of a high proportion of retired people and people engaged in household duties.

Table 25: Socio-economic characteristics of Demonstration areas

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (E)	MESSARA (EL)	DEVELOPMENT (H)
Population over 65	15.1%	11,4%	18,1%	19%		35%	15,2%	
Economic Activities	Agriculture	Forestry	Y		Y	Y	Y	Y
	Fishing		Y					
	Livestock				Y		Y	
	Industry			Y		Y		Y
	Public Administration	Y		Y	Y			
	Professionals	Y	Y					
	Small shop owners	Y	Y	Y			Y	Y
	Tourism	Y	Y	Y	Y	Y		
Commuters	Y							
Unemployment	1,7%	5,5%	7,6% (2,6% rural area)	17%	6,6%	18,6% - 39,7%	3,3%	8%

Table 25 Socio-economic characteristics of Demonstration areas

6.4.4 Road connections – PT system

All the demonstration areas are connected to the national road network with at least one main road which traverses the length of the area and serves as the main connection artery to more central locations. This is the case in Austria, Finnish and Hungary where a heavy traffic main road lies at the border of or passes through the demonstration area. A secondary road traverses the RUTO and MESSARA demonstrations and provides connections to regional centres. The main population centres for these areas are located along these road arteries.

The Welsh demo area is served by four secondary single-carriageway roads.

On the island of Gotland there is one main road on the west coast and a network of secondary roads radiating from the capital city of Visby and forming the rural road network of the demo area.

Conamara is a special case in the sense that there is a coastal national road and a secondary inland road. The Aran Islands that are included in the demo are connected to the mainland with ferry and air service.

All major roads are asphalt paved, in good condition and reasonably well maintained. This is not always the case with the smaller country roads that connect the villages, settlements and hamlets where the rest of the population lives. In Wales it is reported that these roads are narrow, steep and unsuitable for bus service, while in Greece secondary roads are unpaved.

Only the Austrian demo area has immediate access to railway services. There are two stations within the service area which are both important destinations for the users of the service. There are two railway lines passing at a distance of 20 kilometres from the borders of RUTO. Railway service is also available to the inhabitants of the settlement of Matko that is part of the DEVELOPMENT demonstration, but it is not convenient for the pupils living in the village to use the railway for their daily journey to school because there is no bus service to the train station.

Public Transport services are offered in all demonstration areas with varying degrees of quality of service. As a general rule, bus services run on the major roads and between the population centres along these. There are also connections to other regional population centres outside the demonstration areas. By contrast, other settlements on secondary roads are serviced infrequently e.g. once per week or not at all. There can also be seasonal variations in levels of service: some parts of the Municipality of Leppävirta for example, only receive PT service in the winter.

The number of operators offering PT services in demonstration areas varies depending on the legal status of public transport in the country. There is only one operator of regular services in Greece and Hungary, which is state-owned or has the monopoly of passenger services at the local level because no competition is possible. In other countries there are more than one private operator and transport companies operating a mixture of buses, mini-vans and taxis on tendered contracts. It is noteworthy that in countries where a sole operator offers passenger transport services the only vehicles used are buses. The situation in Greece and Hungary is changing, however, with the introduction of new legislations, which, in the case of MESSARA, made the demonstration possible.

Table 26: State of PT network in Demonstration areas

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
Structure of local road network	National road traversing the area	National coastal road Secondary inland road	Radial network of secondary roads	One main road traversing the area	Two secondary roads	One main road traversing the area	One main road traversing the area	Major highway
Road condition	Good	Average	Average	Good	Average	Average	Average	Good
Providers of PT	National / Regional Bus operator	1	1	1	1	1	1	1
	Local Bus operators		3			3	2	
	Mini-bus operators		19	3	5		2	
	Mini-Van operators (Taxis)			15	24			
	Taxis						23	2
Railway	Station				Station			Station

Table 26 State of PT network in Demonstration areas

6.4.5 Operational Characteristics

6.4.5.1 General characteristics

In this part of the report, the services offered by the ARTS demonstrations will be analysed according to their operational characteristics. A possible classification scheme for the demonstrations is based on the way the services are delivered with regard the route of the vehicles. Research in VIRGIL has underlined the importance of the demand responsive services in a rural context. They offer the flexibility that is needed to cover large, sparsely populated areas cost-efficiently. This correlation of the size of the service with the type of service can be verified in ARTS, where on-demand services are being offered in the three demonstrations with the most dispersed populations (SAMKOM, BEALACH and LEPPÄVIRTA).

On-demand services are being offered by the following demonstrations:

ALMA

BEALACH

SAMKOM

LEPPÄVIRTA

The rest of the ARTS demonstrations are implemented on fixed-route systems:

CYMRU

RUTO

MESSARA

DEVELOPMENT

A special note should be made for CYMRU: for analysis purposes only the demonstration is being examined as a fixed-route system although it is primarily an information measure.

6.4.5.2 Service area and number of settlements

One way to assess the reach of each demonstration is to consider the number of settlements being served. This is easier with a fixed line transportation system where the stops are usually located at the settlements along the route.

In cases of on-demand systems, where the population is more dispersed and settlements structures more difficult to discern, it makes more sense to assess the reach of the demonstration in terms of the number of areas served. These are further sub-divisions of the service areas that are the operating limits of each on-demand service. In fact two on-demand demonstrations have designed sectors from where the operator collects passengers. Together these sectors cover the whole demonstration area.

These demonstrations are SAMKOM and LEPPÄVIRTA with 7 and 10 sectors respectively. BEALACH operates in 6 non-contiguous subdivisions of Conamara which do not cover the whole area and on 4 offshore islands. ALMA offers services in the whole area defined by the Klaus municipality and to the 3 main settlements contained therein.

It is more difficult to define and calculate the service area of a fixed-route service. Apparently it is the immediate area bordering on the route and the area of the settlements along the route. In literature the term "catchment" area is used and is the area where all potential passengers of the service live. Service areas are defined more liberally in ARTS where there are fixed-route services.

The existence of two routes on which CYMRU is implemented leads to the definition of two service areas along them. The number of the settlements served equals the terminal points of the routes plus the number of the intermediate stops.

RUTO straddles four municipalities and includes 47 well-defined service points.

In Greece the demo is being implemented in one municipality with 5 settlements.

All of the demonstrations in ARTS are designed in such a way that passengers are transported from the surrounding areas to a central town where important general services, shopping opportunities and other facilities are available. The residents of the local centre are expected to use the demonstration services for an out-going journey only very rarely. Therefore the number of settlements refers to the peripheral settlements. Exception is LEPPÄVIRTA where the demonstration offers services inside the town of Leppävirta.

Also, in the MESSARA demonstration, services are offered from the central settlement of Gergeri to the nearby Health Centre located in another Municipality. One of the most significant features of this demonstration is that once a day three times per week there is service to the Health Centre which is located in a nearby municipality, since there are no organised medical facilities in the demonstration area.

The demo area itself has four service points but an additional route includes the Health Centre at a neighbouring municipality bringing the total number of service points to five.

6.4.5.3 Number of routes and stops

This information is relevant only for the fixed-route services. On-demand services do not operate along routes. Each time a door-to-door service is used a different route is defined with unique characteristics. There are on-demand services that are operated on a route-deviation principle: the vehicle follows a constant route but can deviate if the passenger asks. In this case it is difficult to calculate such characteristics of the route as its length.

The number of stops per route applies only to fixed-route services. The notion of stops is not relevant for on-demand services. Three of the four demand-responsive demonstrations of ARTS have checkpoints. These are obligatory stops at fixed times and usually are central points within walking distance of services and shops or they can be interchanges with other transportation modes.

The longest route in ARTS is 40 kms long and can be found in Galicia where the demonstration with the most routes takes place.

Table 27: Demonstration route characteristics

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
Number of settlements served	3	20 4 islands	5	7	8 (Route 12) 6 (32/35)	47	4	2
Number of areas served	1	6 4 Islands	7	10	2	4	1	2
Routes	On demand				2	14	4	2
Length	On demand				Line 12: 32 km Line 32/35: 35 km	13 – 40 km	17 – 24 km	
Stops	On demand				Line 12: 41, Line 32/35: 35 (not all of them on RTI)	1 – 6 per route	Route 1: 4 Route 2:5	Matkó service: 3 Szarkás service: 1

Table 27 Demonstration route characteristics

6.4.5.4 Frequency of service

Frequency of service is a complex issue for any operator of transportation services and has a direct effect not only on cost but also on the supply from the users' point of view. A common problem in rural areas is the fact that fixed-route systems offer very infrequent service. In ARTS three of the fixed-route services depend or offer school transportation. Therefore they must transport the students every school day. In Spain, all areas and all settlements receive services twice a day. In Greece there is a higher frequency of service because students of different educational levels are transported. MESSARA transports both kindergarten and higher-level students. While kindergarten, elementary and lower secondary schools start at the same time, they have different finishing time. This means that in the morning all students may ride the same bus, but at noon kindergarten pupils must be transported on a separate bus run because they finish earlier.

On-demand services offer the flexibility that is needed to maintain a good level of service. Even then, there are some limitations. It would be very expensive to cover a large area with on-demand services which are available every day of the week or every hour of the day. In ARTS on-demand services are organised in such a way that an operator covers only a part of the whole demonstration area. Each of these sub-divisions is serviced with different frequencies. In Gotland, for example, some areas of the island have service twice a week, while some others, closer to the main city of Visby have service every day. In LEPPÄVIRTA half of the areas receive service twice per week but only when schools are on holidays. In the other half of the demonstration, which is serviced by the minibus, one area is serviced three times a day and the remaining four twice a week

6.4.5.5 Operating hours

If one considers ARTS as a single demonstration spanning 8 European countries then it is possible to say that it offers services from 6:00 a.m. until 23:30 p.m.. Indeed a passenger living in Steyrling in Austria could arrange for a ride at 6:00 in the morning with ALMA (although he would have to make the reservation the previous day), ride the Dorfmobile to the train station, take the railway to Vienna and arrange for a flight to Wales. Once in Wales he could call the CYMRU phone number to get information, arrange for a railway trip to Pwllheli, take the last bus on line12 and arrive to Trefor at 23:30 the same day.

The demonstration with the longest operating hours is CYMRU that runs continuously from around 7 a.m. until 11:30 p.m. The Swedish demo also has long operation hours because in one area a special evening service for young people returns at 11:00 p.m. from the main town Visby.

Most of the services operate from Monday to Friday and only the CYMRU service operates through the week-end. The demonstrations combining or offering exclusively school transportation (RUTO, MESSARA, DEVELOPMENT) operate on school days. LEPPÄVIRTA is a special case because, in five areas the mini-bus service operate only when schools are closed.

The rest of the demonstrations do not offer services every day. In Sweden most of the areas are serviced twice per week, as is the case in Finland. Finally, in Ireland six areas run services two days a week and the other four areas one day a week.

Table 28: Demonstration service characteristics

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
Timetable	Completely on demand	Fixed departure and arrival time and timed connections at interchanges. In-between stops on-demand (Route deviation)	Timed stopovers at checkpoints. Other stops on-demand.	Mini-bus: Fixed departure and arrival times at city checkpoint. Mini-vans: On-demand	Fixed	Fixed	Fixed	Fixed
Hours of operation	6:00 – 19:00	8:30 - 19:30	9:00 – 23:00	7:00 - 16:00	Line 12:7:00 – 23:30 Line 32/35:6:50 – 23:25 11:30 – 18:45 Sundays and holidays	9:30 – 18:30	7:20 –14:20	
Schedule	Monday - Friday	Monday – Sunday	Monday – Friday	Monday – Friday	Monday - Sunday	Monday – Friday	Monday – Friday	Monday – Friday
Frequency	As many times as there are requests.	2 areas and 4 islands twice a week 4 areas once a week	2 areas: once a day 5 areas: twice a week (1 evening special for young people)	School holidays: 1 area - daily (mini-bus) 9 areas: twice a week Schooldays (mini-bus): 1 Area daily 2 areas: once a week 2 areas: twice a week	Line 12: 18 times per day each direction Line 32/35: 15 times per day each direction Sundays and holidays: 4 each direction	Once a day each direction	3 times per day 2 days 4 times per day 3 days	Once a day each direction

Table 28 Demonstration service characteristics

6.4.5.6 Vehicles

Each demo utilises different vehicles of different seating capacities. Demonstrations, such as Austria and Greece, which cover smaller areas than the others, are in position to achieve their objectives with only one vehicle. Services that cover wider areas and offer services to a large number of settlements require a higher number of vehicles. This is clearly the case of RUTO with 13 vehicles on the road. Additionally school transport services require a larger number of vehicles because schools operating hours are set without any slack, all students must get to school at a about the same time making it impossible to use a single vehicle on routes picking up students from opposite directions. This is why two vehicles are needed in the Hungarian demo.

On-demand services covering large areas use more vehicles since the whole territory is partitioned into sectors and each sector is contracted to a different operator. Thus nine different vehicles are used in BEALACH, seven in SAMKOM and five in LEPPÄVIRTA.

At least 46 vehicles are needed for the operation of ARTS demonstrations. The most common type of vehicle is a 14-15 seats mini-bus of which there are 19 (17 with 14 seats and two with 15). The 8 – 9 seat category of mini-vans is well represented with six vehicles. In the bus categories the 35 seater is most prevalent because it is used on the two CYMRU lines. Otherwise the biggest vehicles in ARTS are the three 55-seat buses that are used in RUTO for school transportation.

The smallest vehicles are two cars that seat four – five passengers and are used for the Swedish and the Austrian demos respectively.

Accessibility for passengers with disabilities is poor. Only the CYMRU vehicles are all wheel chair accessible. In BEALACH five out of a total of nine vehicles are equipped with a passenger lift. In LEPPÄVIRTA the mini-bus is accessible as well as two of the taxis (mini-vans). In Austria – due to the small budget – a vehicle with access for the disabled was out of reach. But as the service is door-to-door, even handicapped passengers can use the vehicle. The driver takes care of his/her passengers and helps also with un/loading and carrying of shopping bags.

6.4.5.7 Operators

There are a different numbers of operators with different legal status involved in each demo. Private operators provide services in the majority of demonstrations, volunteers are involved in two and a municipal authority is operating the Greek demo. There are 11 different operators under contract in BEALACH; five are volunteers clubs and six are local private operators. The only demonstration run exclusively by volunteers is in Austria where the drivers have formed an association responsible for all operational aspects of the service. The status of the Irish volunteer clubs is that volunteers sit at their boards of directors but the drivers of the demonstration vehicles are paid employees.

The rest of the on-demand demonstrations have contracted the service to a number of operators one for each sector. In SAMKOM there are seven different operators, one per sub-district.

In Finland there is a slight variation: the mini-bus operator has a contract for five sub-areas, but each one is serviced twice a week. The rest five sub-areas of LEPPÄVIRTA are serviced by four taxis (mini-vans), with one operator responsible for two areas which are served on different days of the week.

There is one regional company and three local interests that operate buses on the two CYMRU lines. In RUTO, nine of the routes are operated by one local operator and the rest four by another transportation company which is also local.

The 2 buses of the DEVELOPMENT demo belong to a regional bus company operating in the area (Kungälv – Volan), while the single mini-bus of the Greek demo is owned and operated by the municipal government.

6.4.5.8 Fares

Travelling on an ARTS demonstration costs anywhere from nothing to 6,4 depending on distance. In some demonstrations ticket prices are almost uniform while in others a lot of different pricing schemes are available. For example in Spain and Austria a single ticket costs 1 and 1,5 respectively for all users. Monthly discount are available: in Austria members of the Association can purchase a monthly pass for 20 and in Spain a 20-trip pass is available at 25% discount.

There are 3 levels of fares (1 , 2 , 3) in BEALACH with return tickets available at a discount. Passengers over 65, disabled and their qualified companions travel for free.

Fares are based on distance in the Welsh demonstrations while a variety of discount and special tourist promotions tickets are available.

In Finland tickets are also priced by distance with a single tariff for all passenger categories except for holders of a special pass issued by the Social Services, which also funds the trips.

SAMKOM has the most complex fare structure. The basic adult fare is based on-distance and there are two other scales, one for retired and young passengers, one for children. There are surcharges for special social services trips, special medical trips and for the once per week night service. In both Finland and Sweden it has been stipulated that on-demand trips should cost no more than a trip of the same distance on the PT system. Through ticketing is possible in Sweden as passengers can use the ticket issued by the on-demand services to travel on the regular bus line and vice versa.

6.4.5.9 Feeder service

An important characteristic of a number of demonstrations is that they have been specially designed so as to connect with the regular PT services available in the demonstration area. This is the case in Sweden where the checkpoints are timed so that passengers can transfer onto the regular bus line to the main population centre of the island. What is noteworthy in this case is that this option is available once a week to users who travel from all points of the service area.

In Ireland a number of on demand services are operated with stops that are interchanges with long-distance bus lines to urban areas inside and outside of the demonstration area. In fact, this aspect of the demonstration will be promoted to targeted population groups, e.g. young and old people.

In CYMRU special attention is paid to the bus-railway intersections where electronic boards connected to the RTI system will be installed.

In Finland one of the areas served by the mini-bus has a checkpoint in the bus station on the main bus route that traverses the demonstration area. In the Austrian demonstration PT stops are preferred destinations. The "Dorfmobil" is used as a feeder mode towards and from bus stops for people living far apart from the stops of the regular buses and it is also used as a feeder mode towards and from the two train-stops in times when there is no bus available. The start of the operation at 6:00a.m. was chosen for the main reason that commuters and pupils can reach the early trains.

In the rest of the countries it is possible to use the demonstration services to connect to the other PT services, but because their timetables depend on school operating hours there is no flexibility in these systems to accommodate PT timetables.

Table 29: Demonstration operators and vehicles

		ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
Number of operators		1	11 (1 per area 1 area served by 2 operators)	7 (1 per area)	5 (1 serves 5 areas 1 serves 2 areas 3 serve 1 area)	4 (1 regional company, 3 local operators)	2	1	1
Type of operator	Private operators		6	7	5	4	2		1
	Volunteers (Association)	1	(5)						
	Municipality							1	
Number of vehicles		1	12	7	5	9 buses / day / direction 15 buses	14 buses /twice a day	1	2
Type of vehicle		1 Car	12 Mini-bus	1 Car 4 Van 2 Mini-bus 1 Bus	1 Mini-bus 4 Mini-vans	Bus	10 Mini-bus 4 Bus	1 Mini-bus	2 Bus
Seating capacity (number of vehicles)		5 (1)	8 (1) 9 (1) 14 (9) 18 (1)	4 (1) 8 (3) 19 (1) 45 (1)	8 (4) 14 (1)	35	14 (7) 15 (3) 25 (1) 55 (3)	18 (1)	43(1) 45(1)
Wheel-chair accessible			All	4 Van 2 Mini-bus	1 Mini-bus 2 Mini-vans	All			
Condition		New	(Different)	(Different)		New / 3 years old	Less than 10 years old	8	

Table 29 Demonstration operators and vehicles

Table 30: Demonstration operational characteristics

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
Single fare:	1,50	1 , 2 , 3	1,3 - 6,4 based on distance	2,3 - 4.4 based on distance	0,70 - 3,6 based on distance	1	Free	
Special fares	Monthly tickets at 20 available for members of the association.	Discounted return fares Over 65, disabled and qualified companions travel free	Three fare scales: adults, retired and young, children. Surcharge for night service, special trips. Monthly tickets and other discounts not valid.	Holder of special social sector issued passes travel free.	Variety of ticketing options. Discounted return fares, commuter and tourist special offers	20 trip pass available at 25% discount		
Feeder service	Y	Y	Y	Y	Y	Possible	Possible	
Through ticketing			Y		Y			
Special conditions		Tickets must be purchased in advance	Driver collects the fare. Travelling does not cost more than regular PT.	Travelling does not cost more than regular PT.				

Table 30 Demonstration operational characteristics

6.4.6 On-demand services

Four ARTS demonstrations offer on-demand services: ALMA, BEALACH, LEPPÄVIRTA and SAMKOM. While the principle of operation is the same, i.e. the users reserve a trip in advance and the vehicle arrives at their doorstep at the scheduled time to transport them to the required destination, in practice there are numerous variations. Some of these alternative ways of organising on-demand passengers' transport are demonstrated in ARTS.

The only demonstration that sets no restriction to the options available to the users with regard to the mode of operation is ALMA. Users are offered the "pure" on-demand service: they embark and disembark the vehicle at the points of their choice, although PT interchanges have priority as destination points when two passengers request a trip at the same time. The second aspect of on-demand is also realised: during operation hours people can take a ride whenever they need it.

In BEALACH the service is operated as a route-deviation scheme. There are some routes with fixed terminal points and stops at interchanges with long-distance buses. Users will be picked-up on request only if they live along the route or can ask the driver to deviate from the route for the return trip or to reach a desired destination. Some of the routes also have stops that serve as transfer points to the PT system. Since the users are not used to this new type of service in Conamara, these transfer points will be pointed out as an option to complete a long journey in a convenient way.

On-demand services in Sweden are operated between the user's doorstep and a checkpoint located in one of village and the city of Visby. In other words the passenger asks to be picked-up at a certain time that will allow the vehicle to arrive at the checkpoint at the scheduled time. There the users have the chance to do their shopping, visit the medical services or use some other service. After a fixed period of time the vehicle returns the users to their place of residence. The time that the vehicle remains at the checkpoint is longer one day of the week. One day of the week this time is fixed in such a way as to allow transfer onto the regular PT service to the city of Visby.

The SAMKOM on-demand service is not available between two points within the same area.

Finally in LEPPÄVIRTA the municipality has been divided into ten sectors: in five, the service is "pure" door-to-door and is offered on taxis (mini-vans); in the others is offered on a mini-bus that stops in the centre of the city where passengers can embark and disembark without a reservation. The driver is asked to deviate from the route but has to keep to the overall schedule and reach the central checkpoint on time.

The small scale of ALMA (about ten trips per day) does not mean that there is no need for a Travel Dispatch Centre (TDC). Users simply call the driver and arrange the details of the trip directly. The driver hands over the current list of trip-bookings to the next driver on duty and so on.

This is not possible with the other three demonstrations. All are operated through a dispatch office where passengers call and make reservations. In the case of ALMA users can also fax their reservations or send an e-mail to the municipality's secretary who will contact the driver and also offers the possibility to contact the Dorfmobil association with all questions, complaints etc. There is also the option to subscribe to the system and ask for repeated services (every week, every month).

All demonstrations require or recommend bookings in advance, e.g. the previous day. The driver of the Dorfmobil in Austria will accept reservations at the latest half an hour before the time of the requested pick-up. In the LEPPÄVIRTA demo it is possible to ask for a trip half an hour before the scheduled start time of the service in the area the user is calling from. All reservations should be received at the TDC by noon the previous day in Ireland and Sweden.

In addition to handling the reservations, the other function of the TDC is work out the schedule of pick-ups and drop-offs for the next day and to transmit this to the operators. This is usually done by

Fax. Only in Leppävirta the mini-bus is equipped with an on-board data terminal to receive the schedule of requested stops from the TDC.

In SAMKOM and LEPPÄVIRTA the TDC is located in regional centre (Visby, Kuopio). In Finland the TDC has a regional role coordinating the transportation services of eight municipalities, and it is in fact, located outside the demonstration area (Kuopio)

In BEALACH the coordination centre is called the Travel Demand Centre. It was created specifically for the needs of the demonstration and it operates at the offices of one of the Voluntary Organisations participating in BEALACH. Apart from taking reservations for the on-demand services, it will also function as the focal point for information about transport. The user can call and get information about BEALACH, other local operators, local bus services, and the possibilities of transferring to long-distance bus service.

BEALACH is the only on-demand service to use specialised software and has installed the user data-base and a GIS package.

Two of the TDCs (Sweden, Finland) existed before ARTS.

It is envisaged that the BEALACH co-ordination centre play a more important role than just taking reservations and arranging the passenger lists. The idea is that it will be the central dissemination point for all transport-related information in Conamara. This is why it is called the Travel Demand Centre.

Operators of on-demand services adopt rules that make the provision of services possible and keep the costs within manageable limits. National legislations impose various restrictions to the operation of on-demand services. For example in Austria public transport is required to include and offer stops with timetables. This regulation forced the operator of the ALMA demonstration to designate stops in the service area and provide a basic timetable. Furthermore, the demonstration is not allowed to compete against the Austrian state-owned and state-run public bus operator. Therefore, no reservations are accepted, and consequently no service is offered within half an hour before and after the operation of "regular" buses, during the time that the bus is inside the borders of the municipality.

None of the ARTS on-demand services operate in real-time mode and all of them require in-advance reservations from users. The Dorfmobil accepts the latest reservations in terms of time before the trip, just half an hour in advance, although for 6 a.m. pickups the call to the driver should be made the day before. It is, however, possible to add another trip during a ride: For example people like to shop and ask the driver for the return trip in fifteen minutes. When no other trip is pre-booked, this "direct booking" is also accepted. Normally the driver waits in front of the shop.

All other demonstrations require that the reservations be made until about mid-day on the day before. This allows the TDC to compose the passengers' lists with their names and addresses and to transmit them to the operators.

In Ireland the passengers who use the service with regularity are encouraged to become subscribers of the service, e.g. to state the time and the day of the week that will use the service regularly. They tell the Bealach Travel Demand Centre the time and the day of the week that they will need to use the service and the frequency during the month. For example a resident can ask for a deviation of the Friday mini-bus route and pickup from his doorstep twice a month. This way planning is easier for the TDC and the user does not need to make a call every time.

In Leppävirta a service quality mandate has been adopted that every request will be honoured within five minutes of the agreed time.

In Sweden the on-demand services cannot be used for transportation within the borders of the service area assigned to the operator. All trips have as destination the local population centre.

Table 31: Demand-responsive demonstrations characteristics

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)
Checkpoints		Y (interchanges)	Y (village or town centre)	Y (Checkpoint in town centre and bus station)
Special notices:	Trips to PT stops have priority		Once a week the stopover at the checkpoint is longer. Once a week timed transfers to PT system at checkpoints.	
TDC	Driver	Y	Y	Y
Latest booking time before trip (hours)	½ hour	½ a day (Until 13:00 the previous day)	½ a day (Until 12:00 the previous day)	½ before operating time of the area – same day
TDC operating hours	Driver from 6 to 19.	9-17, (10-13 for bookings)	24/7	7:00 – 17:00 (Recommended time for bookings 10:00 – 14:00)
Bookings	Telephone	Telephone, letter, fax, e-mail	Telephone	Telephone
Transmission to the operator	Mobile phone	Fax, e-mail	Fax	GSM Fax GSM Data terminal
Software used		+		+
Special conditions of on-demand service	Trips before 6 a.m. need to be booked the day before			First-call first-serviced
	Booking time conflicts are solved on a personal basis			
	No rides within half an hour before and after other PT services			All pick-ups within 5 minutes of the scheduled time
	Trips to PT stops have priority	Subscriptions	Trips should have a central settlement as their destination	

Table 31 Demand-responsive demonstrations characteristics

6.4.7 Users

All demonstrations with the exception of DEVELOPMENT are open to the general public. In principle anybody living in the area has the right to use the services. It is expected though that the following categories will be the more frequent users:

- A. People without a car
- B. People without a driver's licence
- C. People with a physical impairment that limits driving ability
- D. People not willing to drive

A significant percentage of the elderly population falls into one or more of these categories. The number could be as high as 100% in rural areas of Greece and Spain. In these countries women even of a much younger age may belong to categories A, B and D.

Younger people fall into categories A and B and form another potential group of users for the demonstrations, in addition to the occasions when they travel as students. Nevertheless SAMKOM is the only area which has made an effort to satisfy the needs of this age group with the adoption of the Friday night service from the rural part of the island to the capital city of Visby. It is thought that the possibility of using BEALACH in order to transfer to the regular bus service to the main city of Galway may attract younger Conamara residents to the demo services. The convenience of the service will be specially promoted and advertised to the younger population.

As stated above, the other age group strongly represented in categories A to B, as stated above, is the elderly. It is expected that on any given day the majority of people using ARTS demonstrations will belong to this age group. In Sweden and Finland trips for the elderly users of the demonstration services are reimbursed by the Social and Health services of the municipalities. In Greece the demonstration will offer access to the Seniors Day Care Activity Centre and to the Health Centre. Older people form the majority of visitors to these two services. In Austria the services are very popular for shopping and trips to the doctor.

In Ireland BEALACH presents the opportunity to holders of free travel passes to make use of their pass.

It is not unlikely that any demonstration will be used extensively for work trips with the exception of ALMA, CYMRU and possibly RUTO. In all other demonstrations it is highly unlikely that commuters will be able to use the services on a regular basis. People working at home, on the other hand, have been identified as users of demonstration services in Sweden and Ireland.

Regular passengers are being transported in all demonstrations, with the sole exception of DEVELOPMENT, which is used only by pupils. The term regular passengers refers to all those that do not belong to a group transported under special conditions, such as students.

In addition to Hungary, two more demonstrations, RUTO and MESSARA, are based on school transportation. Student transportation is also offered on a very limited scale in LEPPÄVIRTA. In all other countries students are transported by exclusive services but may use demonstration services for regular trips.

All demonstration services are open to both permanent residents and visitors to the areas. Nevertheless, it is only in Wales that there is a real likelihood of tourists using the services. In the rest of the demos, the services target the permanent population and will only occasionally be used by tourists.

Table 32 Demonstrations user groups

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
Regular users (No car, No driving licence, Do not want to drive, Physical limitations)	Y	Y	Y	Y	Y	Y	Y	
Commuters	Y							
Older	Y	Y		Y				
Disabled	Y	Y	Y	Y				
Youth	Y	Y	Y					
Home-office		Y	Y					
Tourists	Possible	Possible	Possible		Y			

Table 33 Demonstrations user groups

Table 34: Demonstrations special characteristics

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
School transport	Feeder to other PT	No	No	No (only in 1 area)		Y	Y	Y
Social Sector		Y (1)	Y	Y			Y	
Health Sector	Doctor	Y (6)	Y	Y				
Volunteers	Symbolic compensation							
	Taxation of compensation is a problem							

Table 34 Demonstrations special characteristics

6.4.8 Public bodies

It would be impossible to carry out the Demonstrations in ARTS without the active involvement of Public Administrations at various levels. This involvement should not always be interpreted as direct funding of the demonstrations.

In Sweden, for example, the transportation functions of the Social and Health Sectors existed and were well funded prior to the implementation of ARTS. It became apparent that both functions could be served utilising the same resources, provided these two departments could come to an agreement about procedures and rules.

A somewhat similar situation had developed in Spain. The Regional Educational Authority was responsible for the funding of school transportation while the Regional Transportation License issues licenses to transport operators. RUTO was made possible only when the two Authorities agreed to grant permission to transport regular passengers on school buses.

Social Services of the Municipalities are involved in three demonstrations.

Governments at regional level made decisions to provide funds for the demonstrations in Austria, Greece and Wales. In Ireland BEALACH became possible only when the Department of Transport decided to provide funds for the Rural Transport Initiative, a national level program.

BEALACH is the most complex in terms of the number of Public Authorities involved. Apart from the state funding, finance was also provided by a Regional Development Agency for the Irish speaking part of the Country, a county Development Board and a regional Health Board.

The Department of Transport provided funding for BEALACH within the Rural Transport Initiative, a national program for Ireland.

Table 35: Demonstrations Public Bodies involved

		ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
Local	Municipal Government	Y			Y			Y	Y
	Development Agencies		Y						
	Transport sector			Y		Y			
	Health sector			Y	Y				
	Social sector		Y	Y	Y				
	Educational Sector								
Regional	Regional Government	Y				Y		Y	
	Development Agencies								
	Education						Y	Y	
	Social								
	Health		Y						
	Transportation						Y	Y	
National	Transportation		Y						

Table 35 Demonstrations Public Bodies involved

6.4.9 School transportation

Transportation of students is an important theme in ARTS since three demonstrations are based on this type of services. In Hungary the demonstration involve carrying students from two settlements in the outskirts of the city of Kescemet to two urban primary schools and a small number of students from the city to a special school in one of the settlements.

While the main objective of the Greek demonstration is the transportation of students, services are open to other passengers as well. Students transported attend kindergarten, primary and lower secondary school.

In Spain, as in Greece, the demonstration combines students with regular passengers. The difference is that in Spain school transport was already available in the demonstration area, although some of the vehicles were operated far below capacity. In RUTO students attend primary and lower secondary.

The Greek demo transports kindergarten and primary school pupils and lower secondary school students. In Spain and Hungary students attending primary and lower secondary school are transported on demonstration buses.

School transportation is funded by the state in all countries. In Spain the Regional Educational Authority contracts and finances directly the school transport for compulsory levels in rural areas, while in Hungary the Municipality which is responsible for the organisation of the service distributes monthly tickets to the teacher who accompanies the students on the bus. In Greece the experience gathered from running the demonstration will allow the Municipality of Rouvas to claim the funds available for student transportation in the future. In Austria all pupils have free school transport (parents have to contribute 10% of the ticket costs). But only when a minimum of five pupils lives in a settlement, a service is operated; hence the Dorfmobil also transports some pupils.

6.4.10 Volunteers

Volunteers are part of ARTS in two demonstrations: ALMA and BEALACH.

In ALMA a local association of volunteers is, in essence, the operator of the services. Members of the association take turns to drive the Dorfmobil. The small scale of ALMA allows the driver on-duty to accept calls on a mobile phone which is the property of the association. Members of the association are also responsible for keeping the account books, for selling tickets and other administrative matters. Membership is open to any inhabitant of the municipality, although not all members necessarily become drivers. The drivers receive a small compensation of 2,20 per hour.

The involvement of volunteers in BEALACH is not as direct as in the Austrian demonstration. In Conamara a number of Voluntary non-profit groups are active in local development, in organisation of arts and cultural events and in the provision of day care services. They own vehicles for the transportation of their clients or for their personnel, but these are under-utilised. In the demonstration, these groups offer services using their own vehicles and receive compensation from BEALACH. Usually the volunteer participation extends to sitting at the board of directors; drivers and other personnel are paid employees.

6.4.11 Information Technologies

There is only one demonstration that has as main objective the use of Information Technology. In Wales the demonstration involves the implementation of a Real-time Information (RTI) System. The system constantly receives updated information about the position of buses on two routes and stores

this in a central computer. This information can be assessed via SMS messaging or a conventional automated landline enquiry service. Prior knowledge of the code number of the stops is not required, although it is anticipated that following a small number of uses, passengers will remember the unique reference number of the stop(s) they regularly use. The voice system provides RTI to users via landline telephones – the key difference between the two services is that the landline system passes the information to the user verbally, rather than via SMS messaging. A helpful feature of the system is the ability to store information about the user resulting in quicker retrieval of the required information. Rural users will be able to plan their journeys more easily both before and during their trip. The idea is that the user will be able to find out in advance the time the bus will reach the stop nearest to his/her current location. There is an option to receive the information in either English or Welsh. Real-time information will also be displayed on electronic boards at selected bus-rail interchanges to facilitate integration of the two modes.

Information measures are also pursued in a smaller scale in DEVELOPMENT. They aim at making the details about operating student transportation to a wider public and more specifically to parents, parents associations and municipalities. The demonstration is perceived as a useful model for other rural areas of Hungary where schools close and are transferred to urban areas. The measure will be implemented with dissemination over the Internet, mailings to parents associations and distribution of brochures.

Telematics are certainly present in other ARTS demonstration, but do not play a key role. For example, in Finland data are transmitted over a wireless link from the TDC to a terminal on board the mini-bus that operates in five areas. In Austria all communications between users ordering a ride and the drivers of the Dorfmobil are made via mobile phone.

6.5. Conclusions

The following table summarizes the key characteristics of demonstrations at the end of March 2003. The two main categories under which demonstrations can be grouped are on-demand services and fixed-route services. The Welsh demonstration is a “pure” technology implementation effort and it is unique in this sense within ARTS. The implementation is carried out on conventional bus lines, but this is not its key characteristic. It is only put under the fixed-route category for the sake of simplicity.

Door-to-door services are offered in both Austria and Finland. In the other two demand-responsive demos services are operated with checkpoints. In fact in Ireland and Finland, some of the services are door-to-door and others are operated with checkpoints.

On-demand services make use of a TDC in three cases; in the Austrian demo the driver accepts reservations and decides about the schedule.

Even though the demonstration areas are comparatively small, not all locations are served with the same frequency. Some settlements receive service every day and others once or twice a week. This is due to the fact that local conditions are very different between the sites and that services have been designed to cover the needs of the local users in each country.

Most of the demonstrations operate on weekdays. During the implementation phase, all areas will be serviced by an ARTS vehicle at least once a week. At the other extreme, there are areas which will be serviced that will be serviced 4 times a day every weekday.

All demonstrations transport regular passengers. The Hungarian demonstration was launched as students-only measure but it was expanded to include elderly passengers on one of the routes where there were empty seats on the bus.

School transportation is the dominant theme in 3 demonstrations, which will cease operating by the end of school year.

In two countries, younger people are targeted with specific measures encouraging them to use the demonstration services; namely the Friday night service in Sweden, and special promotion in Ireland.

Four demonstrations were designed to offer access to Social and Medical care providers. Users in the other demonstrations may also use the services to visit the doctor or the municipal social worker. The only demonstration with volunteer drivers is in Austria, while volunteer groups are involved in Ireland. Private operators are contracted in six demonstrations to provide services.

Three demonstrations could not have been implemented without the agreement of two Administrative Offices with different competencies at local or regional level.

In Austria and Greece only one vehicle is operated, while in Spain 13 different vehicles are required. Vehicles accessible to persons with disabilities are used in only 50% of ARTS demonstrations. Technology to provide Real-time Travel Information is used innovatively in the Welsh demo.

The needs of bi-lingual passengers are addressed in two demonstrations.

Tourists are more likely to use the demonstration services in Wales.

Five demonstrations offer interconnections to the rest of the PT network with different degrees of regularity, while three are seriously restricted by the need to conform to school hours.

Three of the demonstrations started on schedule, before the official starting date of October 2002 (2nd General meeting of the consortium). The Austrian demonstration was delayed because of the flood of July 2002. The Welsh demonstration faced a series of problems related to the computerised voice system. The Spanish and Greek demos experienced delays due to political problems (local elections, disagreement between municipalities and regional government). The Irish demonstration was delayed because the announcement of the national initiative funding were delayed.

Table 36: Summary of Demonstration Measures

	ALMA (A)	BEALACH (IRL)	SAMKOM (S)	LEPPÄVIRTA (FIN)	CYMRU (UK)	RUTO (ES)	MESSARA (GR)	DEVELOPMENT (HU)
	On -demand				Fixed -Route			
Door - to -Door	Y	Y		Y				
Checkpoints		Y	Y	Y				
TDC		Y	Y	Y				
Vehicles	1	9	7	5		13	1	2
Wheel-chair accessible		Y	Y	Y	Y			
Frequency of service In % of demo area	As requested (~10 /day)	2 /week - 60% 1/week - 40%	1/day - 30% 2/week - 70%	1/day - 20% 2/week - 80%	15 – 18/day	2/day	3/day - 40% 4/day - 60%	2/day
One-way ticket	1,50	1 , 2 , 3	1,3 - 6,4	2,3 - 4.4	0,70 - 3,6	1	Free	
Regular Passengers	Y	Y	Y	Y	Y	Y	Y	Y
School Transport	Feeder service					Y	Y	Y
Young people		Y	Y					
Access to organised Social Services		Y	Y	Y			Y	
Access to organised Health Services	Y (doctor)	Y	Y	Y			Y	
Volunteers	Y	Y						
Private Operators	Y	Y	Y	Y	Y	Y		Y
Agreement of Different Administrative Offices			Y	Y		Y		
Information measures					Y			Y
Bi-lingual		Y			Y			
Tourists / visitors					Y			
Feeder service	Y	Y	Y	Y	Y	Possible	Possible	

Table 36 Summary of Demonstration Measures

Examining the degree to which the ARTS project as a whole covers the objectives that were set forward in the Technical Annex, it is evident that eight of the ten areas are covered. No demonstration attempts the rehabilitation of a closed-down railway line, which had to be expected when only regions with very low population densities were selected, as those simply do not have enough potential for a railway service. The delivery of goods will be considered by the operators of ALMA after the first three months of the demo operation.

Table 37: ARTS General Objectives

Voluntary initiatives	Yes
Physical Accessibility	Yes
Telematics	Yes
Well integrated network and services	Yes
Intermodality	Yes
Access to centres of social activity	Yes
Access to shopping and health services	Yes
Tourism	Yes
Rehabilitation of close – down (rail) services	No
Delivery of goods	No (*) (*) Delivery of goods is planned in ALMA after a test period of three months.

Table 37 ARTS General Objectives