

# DEMAND RESPONSIVE TRANSPORT SERVICES

## IN THE REGION OF MIDDLE TEJO

Country: Portugal

### OVERVIEW

The region of middle Tejo is a NUTS3 sub-region in the central area of the Portugal, included in NUTS2 region Centre. The Medio Tejo region is quite close to Porto and Lisboa. The Medio Tejo sub-region includes 5 medium sized towns (Ourem, Tomar, Abrantes, Torres Novas, Entroncamento between 45.000 and 20.000 inhabitants) and 5 small towns (under 15.000 inhabitants). Middle Tejo is a mountainous area largely covered by forests and farms, full of natural water sources, pools/basins, lakes and rivers as it is crossed by Tejo and four of its tributaries. The demand responsive services are operated by taxis and integrated with the conventional PT services to serve dispersed demand in the peripheral / rural area and small villages. Different services/networks are operated, all with pre-defined routes schemes and pre-defined stops. The feature of this GP is the coordinated management of various services/schemes through a centralized booking/dispatch centre. The service is managed by the Comunidade Intermunicipal Medio Tejo, an association of Local Municipalities and Public Authorities and operated by a poll of about 30 taxi operators.

### Main aspect/issue addressed by the good practice

Selection criteria: Solutions usable by all the population and specially the disadvantaged, financially viable system.

The conventional public transport offer is limited to serve main destinations and peak hours being the only financially viable conditions to operate the service under a commercial approach, Schedules are adapted only for school needs with relevant service breaks during the day, weekends and school holidays. Shortage of conventional PT service in areas of lower demand (population density) where commercial operation was not feasible causes accessibility problems and social inequality. In the more rural areas, the access to social/economic services by the population requires (almost) to reach polarizing urban centres.



Figure 1. Transporte a pedido

source: <http://mediotejo.pt/index.php/transporte-a-pedido>

### Main objectives of the good practice

The DRT services have been introduced to integrate the PT conventional offer with the main objectives of providing a feasible transport solution answering to unmet needs in terms of flexibility, coverage and interconnection with long-distance and railway services; to reduce operational costs; and to optimize them among different served areas/operated schemes.

The DRT services have been introduced as part of the strategies put in place by CIMT to promote the sustainable development of the region, the coordinated planning of actions and the support to Local Municipalities. CIMT's competencies range from mobility and transport to territory management, from tourism and culture to education and professional qualification, from support to local enterprises to administration/central purchasing of assets and community funding management.

## DESCRIPTION OF THE AREA

<i>Region</i>	<i>Target area</i>	<i>Population</i>	<i>Population density</i>
Medio Tejo sub-region, in the central Portugal	3.344 Km <sup>2</sup> (whole sub-region)	247.000 inhabitants (whole sub-region)	About 74 inh./km <sup>2</sup> (average for the whole region)

### Other

The 6 bigger cities aggregate 30% of the population. 60% of the population lives in small villages of less than 2500 residents. Indeed, the population density is extremely variable in the region: 1.470 inhabitants/Km<sup>2</sup> in the town of Entroncamento, down to 150 inhabitants/Km<sup>2</sup> in Torres Novas and Vila Nova da Barquinha and to 18 inhabitants/Km<sup>2</sup> in the minor settlements and remote rural areas.

The Medio Tejo region was affected by a relevant population ageing trend occurring from 2001 to 2011. The last available census data (2011) registered an average (for the whole region) of 1,85 resident older than 65 years / resident younger than 15 years old with peak of 2,5 in some areas.

The commercial/services activities are the most relevant ones as they sum up to one third of the total number of enterprises/companies (mainly distribution/retail) and to two thirds (68,86%) of the working population (2011 census data).

The employment rate of the population (number of employed people between 15 and 64 years old in 100 inhabitants) varies from more than 45% in Entroncamento, Alcanena and Constância to 35% in Mação and Vila de Rei. The unemployment rate (number of unemployed people in 100 employed inhabitants) is increased by 4% between 2001 and 2011 up to an average of 10% for the whole region (2011 census data).

### Target user groups and needs

The DRT services in the region of Medio Tejo are not targeted for any specific target groups even the features of the services cope at the best with the needs of flexible demand and no-systematic trips (e.g. access to health

services, leisure, flexible work requirements, etc.). The target population has been estimated at around 80.000 people.

## DETAILED DESCRIPTION OF THE PRACTICE

### Timeframe(s)

The services were launched in January 2013 in the rural area around Mação. The pilot area was selected due to it being representative of the whole region and the target area of the services: houses sprawling, ageing trend of the population, inefficiencies of the coverage of public transport services. In May 2014 the scheme was extended to the areas around Abrantes and Sardoal, in 2016 to other 3 areas and it covers a total of 11 areas currently. In 2013 the services cover 5 routes, 68 stops and a target population of 4.000 people. In 2014 they were extended to 13 routes, 245 stops and a target population of 37.000 people. In 2016 the services served about 30 routes, more than 500 stops and the

target population was about 80.000 people. Currently the services operates about 60 routes, more than 1200 stops and the target population is 120.000 inhabitants.

### Bodies involved

The services are managed by CIMT - Comunidade Intermunicipal Medio Tejo which designs the services in accordance with the Local Municipalities. CIMT manages the centralized booking centre to reserve trips for all the served areas. Local Authorities are in charge of contacting taxi operators to operate the services. The funding of the services is sustained and managed by the Municipalities through the coordination of CIMT.

## DETAILED DESCRIPTION OF THE PRACTICE

### Mobility services provided/addressed

The DRT services are operated only in places and times of the day without conventional bus transport offer. Services are operated by taxis (about 30 operators involved, vehicles from 4 to 8 available places). The service scheme has pre-defined routes and stops with time scheduling defined on the basis of the requests submitted by the users. This scheme has been adopted in order to be close to the conventional service and not to replace the taxi service itself. No door-to-door service is operated.

The routes have been design to connect remote rural places to the respective nearest parish offices, to meet the travel needs for services located there, and, from these, to the nearest town. The routes provides connections to regional buses and train services. A minimum number of trips are operated early in the morning and in the afternoon.

### Legal Framework

Due to the lack of legal framework for the implementation of flexible transport services in Portugal in 2012, the pilot implementation of the services requires that the Secretary of State for Public Works, Transport and Communications authorizes the CIMT to develop the project through a dedicated act "Order n.7575" published in June 2012.

In 2014 the flexible transport services in the region of Medio Tejo was in the Strategic Plan of Transport and Infrastructures of the National Government as reference for the deployment of flexible transport services in Portugal. Then in 2015 a new regulation of the Public Passengers Transport services was produced in order to de-centralize the Transport Authority role to CIMT and to frame the flexible transport services.

### Cost and Financing sources

The taxi operator/driver is paid on the basis of the travelled Kms by deducting the tariff revenue. The tariff is distance-based, and it is defined as 50% higher than the price of the trip carried out through conventional PT services. The tariff is almost equal to the cost of a taxi trip on the same distance divided for 4 times.

Depending on the distance the tariff varies from 1,60€ to 5,10€ Euros. A 10-trips ticket can be purchased with 30% discount. The call is free of charge.

The funding is public through the Municipalities budget. In 2016 the tariff revenues cover 35% of the operation costs of the services. From the launch of pilot implementation (2013) to 2016 the operational deficit has been reduced (now it is 0,34 Euro/travelled Km).

The pilot implementation was also funded by ERDF by 70% through the POVT (Programa Operacional Temático Valorização do Território).

### Organizational set-up

All the services are managed through a centralized control centre which is also in charge of managing trip requests by the users (Booking Centre) and to plan the (on-demand) scheduled services accordingly. The Booking Centre is operated by CIMT. The user must call the Booking Centre by phone before 15.00 of the day before the trip. The Booking Centre is open from 9.00 to 15.00 from Tuesday from Saturdays except holidays. The call is free of charge.

The ticket is purchased from the taxi driver onboard.

### Supporting technologies

The collection of trip requests and the service planning is carried out through a management software.

## INNOVATION ASPECTS

### ORGANISATIONAL RESPONSIBILITIES AND PARTNERSHIP WORKING ARRANGEMENTS

Multi-areas/services Booking Centre.

Engagement of taxi operators to operate the services.

Role of Intermediate-level Public Authority (CIMT) for supporting the local Municipalities in the design phase, to allow their cooperation and for the management/operation of Booking Centre.

### LEVEL OF PUBLIC SECTOR FINANCIAL SUPPORT

Tariff revenues cover 35% of the operational costs of the services

### INTERCONNECTIONS BETWEEN SHARED AND PUBLIC TRANSPORT SERVICES

Flexible services as feeder services for long-distance buses and train services.

Flexible services operated as integration of conventional PT in areas where the last one is not economically sustainable.

### ICT CONNECTIONS AND IMPACTS OF THE TECHNOLOGICAL SOLUTIONS IMPLEMENTED

N/A

### OTHER (E.G. SOCIAL INNOVATION, ETC.)

N/A

## ASSESSMENT

### Ridership and other key metrics/results (through key-indicators, where applicable)

The progressive extension of the DRT services from the pilot implementation to the actual coverage is a "self" demonstration of the success encountered among the target population. Since its launch as pilot initiative in Mação, the transported passengers increased from less than 1.000 (in 2013) to 3.000 (2016). In 2017 (data available from January to September) they were more than 15.000. The travelled Kms were 30.000 in 2016 and 45.000 in 2017 (data available from January to September).

67% of the trips are carried out for health reasons demonstrating the service provides an effective answer to mobility needs of the population living in rural areas with low density of inhabitants, particularly for the disadvantaged groups which are more easily affected by social exclusion risks.

It has been calculated that flexible transport services are operated reducing the travelled Kms to 7% of the theoretical amount of Kms which could had been required to operate conventional bus services.

From the launch of pilot implementation (2013) to 2016 the operational deficit has been reduced from 3,5 Euro/ travelled Km to 0,34. The tariff revenues covered 8% of the operation costs of the services in 2013 and 35% in 2016.

The customer satisfaction survey demonstrated high level of satisfaction among the users (high comfort, shorter travelling time, etc.). 72% of the customers uses the service more than once. The data related to trip requests and passengers are processed by the management software of the Booking Centre in order to let the CIMT and the Local Municipalities to better understand the transport demand and tune/adapt the service scheme (routes) accordingly.

### Good Governance

The Good Practice proves the good coordination established between intermediate-level Authorities (CIMT) and the Local Municipalities and the role of coordination/planning which can be carried out by the first one. The good level of stakeholder cooperation is extended to the successful involvement of taxi operators.

### Success factors/strengths

The success factors of the Good Practice can be identified in the management of different services schemes/ served areas through a common (centralized) Booking Centre as solution to optimize operational costs. The cooperation with taxi operators is a second success factor leading to the same objective (the provision of higher quality service at reduced operation costs).

The step-by-step implementation process adopted in this Good Practice is also very inspiring: the service was firstly launched as a pilot in a demo area which is well representative of the target area and was progressively extended based on the conjoint feasibility analysis of local Municipalities and CIMT and analysis of service performance.

The ongoing reduction of deficits in the operational costs and the improved percentage of coverage of service costs guaranteed by the revenues (from 2013 to 2016) demonstrate the high potential in terms of costs optimization and the effectiveness of the monitoring/ assessment/tuning process establish by the Good Practice.

### Difficulties encountered/weakness

The main barrier encountered by the Good Practice was the cooperation with taxi operators which required to present them the flexible services as an opportunity to increase revenues than a competitor. After overcoming this first barrier, a formula to establish the level of contribution of the service must be defined taking account the needs of Public Authorities to save money compared to the operation of the service with bus and the needs of taxi driver. Finally, a change in the working procedure was required in order to make available the scheduled timetable of the flexible (DRT) service (planned by the Booking Centre) to the various taxi control room (which are more than one for the areas involved in the services).

Despite the steady enlargement of served area from 2013 to now and the even higher increase of passengers (mostly in 2017), the weakness of the Good Practice is represented by the relatively low number of transported passengers compared to the target population.

### FEATURES THAT ARE CONSIDERED TO BE GOOD PRACTICE (LESSON(S) LEARNT)

The relevance of the Good Practice consists in the management of different services schemes/served areas through a common (centralized) Booking Centre as a solution to optimize operational costs. The Good Practice is also expiring for the adopted step-by-step implementation process based on the initial introduction of a pilot service (well representative of the target area) and the following extensions to other schemes/areas (managed by the same booking Centre).

The implementation of this approach requires a consistent monitoring/assessment/tuning of the service performance indicators which is demonstrated by the benefits achieved in terms of financial sustainability of the service. This is continuously improved from the pilot implementation up to now. The Good Practice proves the good coordination established between intermediate-level Authorities (CIMT) and the Local Municipalities and the role of coordination/planning which can be carried out by the first one. The good level of stakeholder cooperation is extended to the successful involvement of taxi operators.

## REFERENCES FOR FURTHER DETAILS

### *Contact of the operator and of relevant stakeholders*

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### Key references

- [www.slideshare.net/PresentacionsAMTU/transporte-a-pedido-mdio-tejo-portugal](http://www.slideshare.net/PresentacionsAMTU/transporte-a-pedido-mdio-tejo-portugal)
- “Casos de boas práticas em sistemas de transportes flexíveis”; Gabinete de Planeamento, Inovação e Avaliação, Instituto da Mobilidade e dos Transportes, 17 September 2014
- Decreto Lei 60/2016 Serviço Público de Transporte de Passageiros Flexível, Ana Pereira de Miranda, Instituto da Mobilidade e dos Transportes, 20 October 2016

### Websites

- <http://mediotejo.pt/index.php/transporte-a-pedido>