

1.4. Castilla y Leon Demand Responsive Transport in Rural Areas (ES)

Demand responsive transport services in Castile and León in Spain serving **low demand areas consisting of small and isolated villages** (five residents upwards) and scattered settlements outside the main transport connections



1.4.1 About Castile and León Region, Spain

<u>Country</u>	<u>Region</u>	<u>Target Area</u>	<u>Population</u>	<u>Population density</u>	<u>Visitors/year</u>
Spain	Castile and León	94,22 Km ²	2.557.330 inh.	27 inh./Km ²	7.923.657 (2019) ¹

The Region of Castile and León is composed of 9 provinces: Ávila, Burgos, León, Palencia, Salamanca, Segovia, Soria, Valladolid and Zamora. It is one of the zones of the European Union with lowest population density. The number of villages/settlements in the region is very high (almost 6.000 as a total) grouped into 2.249 municipalities. On the whole only 274 municipalities have over 1.000 inhabitants; only 50 have more than 5.000 inhabitants.



Figure 10 – Provinces of Castile and León Region

Tourism demand across the provinces varies, being more marked in Salamanca, followed by Burgos and León. Data from the regional tourism agency confirm that Palencia, Soria and Zamora have the lowest number of tourists. The number of tourists also varies significantly over the year. In general, the summer period is characterised by a higher number of tourists, with August corresponding to the peak season.

¹ Data collected by the regional tourism agency, https://www.turismocastillayleon.com/turismocyl-client/cm/turismocyl/tkContent?idContent=26945&locale=en_UK. The number of overnights (nights spent at tourist accommodation establishments) in 2022 was of 13,123,431.

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1.4.2 Description of the Mobility Solution ²



Figure 11 – DRT service advertising

Castile and León has the lowest population density amongst EU regions. Conventional Public Transport has proven to not be effective from the users' point of view as the journeys run over extremely long itineraries, the travelling time was very high and the load factor of vehicle was very low in certain hours. The DRT service has currently about 800 routes operated in 105 areas belonging to the 9 provinces of the region.

The service is provided across the territory, but the service frequency varies. A one-way trip and a return trip from each settlement (more than 5 inhabitants) to the capital of the province is offered depending on the local characteristics and range between 2 to 5 days a week. The service is managed by a centralised booking/dispatch centre operated by the Regional Administration. The fleet allocated to the service also varies as a function of the local needs (demand and topographic conditions) and includes buses, vans and taxis.

The main innovation aspects of the service concern:

- the *organisational responsibilities and partnership working arrangements*, as the Regional Administration is managing the operation of the centralised dispatch centre for the entire catchment area and is also accountable for monitoring the service performance (including utilisation levels);
- the *level of public sector financial support* as there has been a strong role of Regional Administration for financing the services;
- the level of *interconnections between shared and public transport services*, as DRT services connect the main towns/ villages with dispersed settlements allowing people to reach the main interchange points;
- the *ICT connections and impacts of the technological solutions implemented*, as vehicles are equipped with on-board units (fleet monitoring system) in order to allow monitoring of the service and to generate info to provide users information.

Target user groups and needs

The DRTs serve 3.557 villages/settlements (belonging to 1.368 Municipalities, hence 61% of the overall number of municipalities in the whole Region) with a target population of about 1 million residents. Among them about 1.400 settlements were identified as lacking acceptable transport services to reach basic social services. The mobility needs answered by the DRT service related especially to the consequences of the organisational restructuring of services such as mail, bank, shops, pharmacies, surgeries, most of which were discontinued in the most rural areas.

² https://www.turismocastillayleon.com/turismocyl-client/cm/turismocyl/tkContent?idContent=26945&locale=en_UK
<https://carreterasymtransportes.jcyl.es/web/es/preguntas-frecuentes-transporte-demanda.html>
<https://carreterasymtransportes.jcyl.es/web/es/viajeros/informacion-general.html>

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Small settlements (< 50 people) without direct access to such basic services (which are not available anymore in the settlement itself) need transport solutions to the nearest place where they can find them.

The DRT is general-purpose (not targeted to any specific user groups), but elderly people are the main users (63,7%) as this is the predominant segment still living in the less populated villages. The share of users that are less than 50 years old is just a small fraction of the total (10,6%).



Figure 12 – Small village served by DRT service

Involved Bodies

The key involved stakeholders are the following:

- Development Department of the Regional Government of Castile and León, which acts as promoter of the initiative and funding body, in charge of the contracting of implementation and maintenance of the IT system, responsible for the management of a centralised dispatching centre and service assessment;
- Municipalities in charge of the service contracting (in the specific area);
- Transport companies operating the services after winning the related procurement. In 2020 there were 106 concessions for the operation of DRT services and about 160 transport operators involved (i.e. bus, vans and taxi companies).

Mobility services provided/addressed

In 2011 about 85.830 trips a year were operated under the DRT scheme, which have contributed to saving 59,62% of journeys planned by the conventional service. In 2012, the operated fleet consisted of: buses (29%), vans (62%), taxi (9%) [2012].

The most recent figures from the regional administration shows that the DRT vehicles have performed a total of 7.3 million km, 75% less than what a conventional PT service would have delivered, leading to 10 thousand CO2 emissions saved.

Although no exact figures of the overall ridership are available to depict the main user typologies, the data collected indicate that the service is not used by tourists as it is essentially used during weekdays, and only available for people registered in the online platform. These preconditions limit the use of the service by occasional travellers such as tourists.

Moreover, it is important to note that the DRT consists of two types of services: pure on-demand services, where a request needs to be made in advance; and mixed services, where there are regular departures but the vehicle can diverge if there is a request.

From July 2021, the regional administration started to offer the DRT service for free. To make use of the service, users need to register in the system and use either a ticket which costs 5€ or the mobile app of the DRT that can be downloaded for free on Google Play or Apple Store. The service can be requested through the App or using a dedicated phone line whose number is also free of charge.

Ridership and other key metrics/results

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In 2011 about 85.000 trips were operated. The yearly number of trips decreased after 2012 due to the service reduction carried out because of public funding cuts. Nevertheless, in 2017 the number of users increased again compared to the previous year by 7%.

The total number of citizens within the service catchment area is 1.226.462 excluding the provincial capitals and 2.239.643 if these major hubs are included. Overall, the DRT has transported 4.522.745 users since its launch in 2004 until December 2022. The user profile consists of 66,7% women and 63,7% over 65 years old. Users give a score of 4,75 out of 5 when asked to assess the “Transport on Demand” service in general, along with 4,79 for vehicle comfort.

Figures of the overall ridership also show that there is a high seasonality effect, with requests increasing in the summer compared to the winter as a lot of people return to the region from their workplaces.

Supporting technologies

The IT system supporting the operation of the system was provided by the Spanish IT provider GMV. The Regional Administration contracted a local company for the annual maintenance. The system consists of an IT platform operated at dispatch centre level and by the units installed on the vehicles. The IT platform of the “centralised” dispatch centre (which manages all the service areas) managed by the Regional administration allows the collection of the bookings received from the users³, schedules the service (for each area), assigns the service to be operated to each vehicle, notifies the planned service to each operator (by web access to the platform) and this work enables the reporting of events occurring during the service’s operation and the collection of data for the assessment of performance indicators on the operated service.

Furthermore, the IT platform manages the data communication with the vehicles, as it sends to the vehicle the planned service (for the current day and the day after), it receives location data from the vehicles and it can also send/receive messages to/from the vehicle. The vehicles are equipped with “on-board” units (driver terminal, GPS, GPRS module for long-range data transmission) in order to enable communication with the dispatch centre and to generate info for providing user information services (for example: real-time arrivals of the vehicle). This information is visualised on info-panels installed “on the road” together with notification of any other problems occurring during the operation of the services. The irregular service conditions (i.e. incidents, traffic congestion, road closure, etc.) are notified by the driver to the dispatch centre through messages.

Finally, the website of the DRT⁴ informs about the routes, fares and scheduling procedures. There is also an app⁵ on Google Play and Play Store that allows users to pay for DRT services.

1.4.3 Timelines and Milestones

Milestone no. 1: 1998 – DRT as Regional Administration strategy
<i>The DRT services concept has been introduced as part of the strategy put in place by the Regional Administration of Castile and León.</i>

³ The dispatch centre is accessible by phone from 8:00 in the morning to 8:00 in the evening during workdays and do not work during weekends. The call is free of charge for the user.

⁴ Carreteras y Transportes de Castilla y León, <https://carreterasymtransportes.jcyl.es/web/es/viajeros/transporte-demanda.html>

⁵ Bono demanda Castilla y León, <https://play.google.com/store/apps/details?id=es.jcyl.fom.tadciudadano.app&pli=1>

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**Milestone no. 2:** 2004 - Launch of the service

Official launch of the DRT service by the Regional Administration. The pilot project was implemented in 2004 in Barco de Ávila, which led to the following extension of the conventional PT services.

**Milestone no. 3:** 2005-2011 – DRT extension

During the first seven years of operation (2005-2014), the DRT service was extended to all the 9 provinces of the region: 18 areas were served in 2005, 57 in 2007, 85 in 2009, 105 in 2014 when the maximum level of geographical coverage was achieved with about 800 routes in operation.

**Milestone no. 4:** 2011 – DRT reduction

Due to the cuts in public funding carried out by the Regional Administrations from 2011, the DRT services were restructured: all the areas already activated are still served but the number of weekly trips for each route have decreased.

1.4.4 Long-term assessment

Success, Durability and Expansion

The service had a period of expansion until 2011. Since this date, the network coverage has remained essentially unchanged. However, the intensity of service offered has declined.

Funding and Financing

The investment costs (IT system including the platform supporting the dispatch centre and the “on-board” equipment) sustained by the Regional Administration cost about 8 million Euros. The annual subsidies for operating costs (financed by the Regional Administration) cost about € 6.200.000 [2021]. In addition to the above, the amount required to cover the deficit required to provide free fares amount to 600,000 €/year.

It was not possible to evaluate the long-term viability based on publicly available information. Nonetheless, based on the information gathered, the service is not profitable as there are no revenues and the costs per trip and km performed seem to be significant.

Why is it considered as a Good Practice?

This DRT service aims to make public transport more efficient both in terms of compliance with users’ needs in remote areas and in terms of costs as well. For the end-users, it is particularly advantageous to the population with less financial resources.

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1.4.5 Transferability considerations

CONTEXT PECULIARITIES	TRANSFERABILITY CONDITIONS
<p>There is a wide acknowledgment that conventional PT is economically unfeasible due to extremely long itineraries and scarce demand</p>	<p>It is important to carry out a pre-design test, as Castile and León has carried out, to confirm if DRT is the most suitable solution for the designated site.</p>
DIFFICULTIES ENCOUNTERED/WEAKNESS	LESSONS LEARNT
<p>The capacity to financially support a PT service offered in such a wide area is certainly a major challenge. Another apparent limitation of the service is that requests for trips need to be delivered well in advance (e.g. if you wish to travel on Monday morning the dispatch centre is not open over the weekend); no relevant engagement practices have apparently been pursued.</p>	<p>The success of the service requires to have a regional administration willing to organise it, fund it and act as dispatch centre.</p>

Main data sources:

- https://www.turismocastillayleon.com/turismocyl-client/cm/turismocyl/tkContent?idContent=26945&locale=en_UK
- <https://carreterasytransportes.jcyl.es/web/es/preguntas-frecuentes-transporte-demanda.html>
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