

Una manera de hacer Europa



BUENAS PRÁCTICAS Actuaciones Cofinanciadas

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**Programa Operativo
Plurirregional de España**

Año 2022

Fondo Europeo de Desarrollo Regional

GOOD PRACTICE. INNOVATIVE PUBLIC PROCUREMENT OF "ANTI-FOG PROTECTION SYSTEMS ON THE A-8" CO-FINANCED WITH FEDER

The pre-commercial public procurement project for the design, implementation and testing of innovative technology prototypes for anti-fog protection systems on the A-8 motorway “**COMPRA PÚBLICA PRECOMERCIAL PARA EL DISEÑO, IMPLEMENTACIÓN Y EXPERIMENTACIÓN CON PROTOTIPOS DE TECNOLOGÍA INNOVADORA RELATIVA A SISTEMAS DE PROTECCIÓN ANTINEBLA EN LA AUTOVÍA A-8**” between Mondoñedo and Xesta, province of Lugo, is presented as a good practice.

This project consists of the design, construction and experimentation with prototypes of innovative solutions for anti-fog protection systems in a test section located in the vicinity of the A-8 motorway between Mondoñedo and A Xesta, in the province of Lugo (Spain), with the aim of validating their future implementation on the road in order to minimise the adverse effects on traffic caused by the dense fog that sometimes occurs in this area and which makes it necessary to cut the A-8 motorway and divert traffic travelling along this section along the N-634 national road, which runs parallel to the motorway.

The fog affecting this section is characterised by "lifting" or stagnant clouds in anticyclonic conditions, which, together with the orography of the terrain and the complexity of the road layout, make it difficult to solve the fog problem.

Initially, the Directorate General of Roads (DGC) carried out a comparative evaluation, both nationally and internationally, in which it was found that there are solutions adaptable to roads in different sectors of activity and solutions that require a technological leap to be implemented in the road network, as they are not currently sufficiently mature.

Likewise, after having implemented almost all the measures available in the current state of the art in terms of road management and operation on the A-8, road closures continue to occur on the A-8 when the lack of visibility caused by dense fog impedes safe traffic flow. For this reason, it was considered necessary to explore the possibilities that could offer innovative solutions to minimise the problems caused by fog and, in particular, those systems that help driving in foggy conditions or cause the isolation, elimination or displacement of fog.

The results of the Preliminary Market Consultation convened on 27 June 2015 and closed on 19 April 2016 found that there are two types of similar solutions on the market, on the one hand, those that act directly on the problem (systems that isolate, eliminate or displace fog) and on the other hand, those that coexist with the problem (systems that help driving in foggy conditions).

This action has a budget of 6.233.726 € and is 80% co-financed 4.986.981 € by the European Regional Development Fund (ERDF), Pluri-regional Operational Programme of Spain 2014-2020 (POPE) through the Ministry of Economy, Industry and Competitiveness, today Ministry of Science and Innovation.

The 7 criteria for the identification and selection of this good practice have been analysed and are detailed below in this document.

1. Information on the initiative has been adequately disseminated to beneficiaries, potential beneficiaries and the general public.

It is considered that the project has been adequately disseminated due to an ambitious communication programme that has been implemented throughout the project, which will be analysed below.

In the first place, for the communication activities planned in the field of "**Information through**

the web", information on the project and its financing with European Regional Development Funds has been disseminated through the **website of the Ministry of Transport, Mobility and Urban Agenda**, highlighting two specific areas:

Firstly: the main web page of the Ministry of Transport, Mobility and Urban Agenda, with direct access from the home page to the European Regional Development Funds site

Front page of the website of the Ministry of Transport, Mobility and Urban Agenda



Website of European Regional Development Fund (ERDF) 2014-2020

<https://www.mitma.gob.es/el-ministerio/fondos-europeos-feder/feder-2014-2020>



In second place: the website of the Directorate General of Roads (DGC), within the website of the Ministry of Transport, Mobility and Urban Agenda, where we can find relevant information about the project, related to the financing with European Regional Development Funds and communication actions, such as videos and the promotional leaflet, among others.

MITMA website. Section of the General Directorate of Roads



Secondly, in the area of "**Information by signage**", a permanent plaque has been installed at the headquarters of the Directorate General of Roads (DGC) in Galicia in the city of A Coruña:

Example of communication through a permanent plaque in a crowded place.



And two **information billboards** have been installed in the test area of the project. The purpose of these billboards is to publicise the project among the direct users of the motorway, as they are located in the area of the A-8 motorway affected by dense fog. One billboard has been installed for each direction of traffic, one in Spanish and the other in Galician.

Example of billboard communication in Spanish and Galician



4.600x2.800 mm

In the area of "**Publications**", an **information leaflet** has been prepared. This publication medium is the most suitable for distribution in the specific territorial area where the problem to be solved

by the project is located and, therefore, the one that can penetrate to a greater extent among those affected by the project. The triptych was produced in phase 1 of the project in order to be able to disseminate the different solutions that have been developed in the project. It also highlights the financing of the project through European Regional Development Funds.

The distribution of the information leaflet has been eminently physical, through its free distribution in displays located in points accessible to beneficiaries and the general public, in the Demarcation of State Roads in Galicia and in the State Roads Unit in Lugo. In addition, it has been made available for electronic downloading from the Ministry's website.

Example of an external publication produced: information leaflet



Within the category of "**Dissemination in the media**", two **promotional videos** have been made, which have disseminated the project in a very visual, close and adapted way to all types of public, and not only experts in the field of knowledge associated with the project. The videos emphasise the markedly innovative nature of the action, both of the Public Innovative Procurement procedure itself and of the experimental technology involved in the project, specifying the results obtained in the tests carried out during the different phases of the project.

The videos have included images of the proposals participating in the project in each of the phases (phase 1 and phase 2), in order to achieve an optimal result in the dissemination of the project, and two versions of the video have been produced, in Spanish and Galician. Finally, in order to achieve maximum diffusion of the videos, they have been publicised and broadcast on different digital platforms, such as the Ministry's website, websites of various agents related to the world of roads, YouTube channels, Twitter, etc.

Examples of dissemination of promotional videos:



2. The initiative incorporates innovative elements.

The project as a whole is considered an eminently innovative action. It arose as a result of the problems caused by the unique weather conditions in the area around Alto de O Fiouco, where particularly dense fog sometimes makes it necessary to divert traffic from the A-8 motorway along the N-634 road parallel to the dual carriageway. This problem has made it necessary to explore innovative solutions to minimise the problems caused by fog in the operation of the A-8 motorway. Therefore, the project aims to eradicate the problem caused by dense fog by using innovative technology, going beyond the measures currently available on the market and requiring a high degree of innovation and technological development. The action associated with the project in question corresponds to a research and development service consisting of the design, construction and testing of prototypes of innovative solutions relating to anti-fog protection systems in a test section located in the vicinity of the problem area of the A-8 motorway. Two types of solutions are envisaged: on the one hand, systems to aid driving in foggy conditions (Lot 1) and, on the other hand, systems for the isolation, elimination or displacement of fog (Lot 2).

Two innovative proposals are developed within the systems for isolating, eliminating or displacing fog: firstly, an automatic diffusion system using sprinklers of hygroscopic materials and, secondly, a system combining static barriers and dynamic barriers using fluid-mechanical devices. Two other innovative proposals are being developed in the area of driving assistance systems in foggy conditions: firstly, a system for lateral road marking with laser light and, secondly, an intelligent horizontal signalling system with LED technology projected onto the road.

It should also be noted that in the last phase of the project, field tests have been carried out with the 4 proposals, which have been supervised by independent bodies accredited by the National Accreditation Entity (ENAC), which have confirmed improvements in visibility in foggy weather.

3. The results obtained are in line with the objectives set.

There are four main objectives that have been met in the project: maximising the use of the infrastructure, improving safety conditions, reducing the adverse effects associated with traffic diversions by reducing them, and ensuring the effectiveness of the solution.

The results obtained are in line with the established objectives. The four participating companies have successfully built, implemented and tested a full-scale prototype in the area affected by the dense fog problem. The greatest improvements have been obtained with the driving assistance systems in foggy conditions. These prototypes increase the utilisation of the infrastructure by reducing the number of hours of infrastructure closure when the measure is implemented. Also, by reducing the number of diversion times, there is a saving in journey times, fuel consumption and associated externalities, resulting in cost savings and improved road safety.

4. It contributes to the resolution of a regional problem or weakness.

The need that the project aims to solve is to eradicate the problem caused by dense fog by using innovative technology, surpassing the measures currently available on the market.

Solving or minimising the problem implies optimising the use of the infrastructure, reducing the hours when it is closed due to the presence of dense fog, with the consequent reduction in journey times, environmental impact and general transport costs; and with the consequent improvement in road safety, as well as other externalities related to the economic and social development of the region. It is therefore clear that the project favours the development of the territory, the target public affected and society in general, reducing travel times for users, improving their safety, reducing the environmental impact of the current operation of the road, improving the transport network and, ultimately, resulting in an increase in the quality of life and standard of living of the inhabitants of the area.

5. It reaches a good portion of the target population.

The universality of this measure means that the entire population will benefit from the effects of the project. An improvement to one of the country's high-capacity roads, the A-8, a key infrastructure for connecting Galicia with the Cantabrian coast and the trans-European transport networks, undoubtedly benefits society, both the inhabitants of the area and the users of the road and even indirect beneficiaries.

About the users of the A-8, the project covers all of them. Using the latest traffic map published by the Ministry as a reference, the average daily traffic density on the section of the A-8 motorway affected by the dense fog is 8,164 vehicles per day. Therefore, all these road users will be direct beneficiaries of the project. In addition, as already indicated, optimising the use of the A-8 motorway by reducing detours along the N-634 will not only directly but also indirectly benefit the inhabitants of the area who, although in some cases they may not be direct users of the motorway, will benefit from the reduction in traffic on secondary roads, the reduction in pollution and numerous synergies in economic development which will lead to an increase in the standard of living and quality of life. In this way, it is estimated that the project will indirectly benefit all the inhabitants of the regions of Mariña Central, Mariña Oriental and Terra Chá. According to National Statistical Institute (INE) data, these regions had a total population of 28,955, 16,170 and 39,935 inhabitants in 2019, respectively.

6. The horizontal criteria of equal opportunities and environmental sustainability have been considered.

The action, with a scope for all users of the A-8 motorway, respects the principles of equality, non-discrimination, and accessibility due to its general nature.

About environmental sustainability, it should be noted that all the participating projects, especially those that have carried out the test prototype, have complied with the environmental requirements imposed for this type of project in accordance with current legislation. In all cases, it has been assessed that the environmental impact is null or reduced, in order to ensure the greatest possible sustainability of the proposals, as well as the non-necessity of submitting the projects to an environmental assessment procedure.

In addition, it should be noted that the main objective of the project is to reduce the number of hours the dual carriageway is closed and, therefore, to increase the use of the dual carriageway as opposed to alternative detours on the national road. This reduction in detours implies greater environmental sustainability by reducing distances and vehicle journey times, as well as ensuring that vehicles travel at a constant speed, with the consequent reduction in emissions, among other environmental benefits.

Finally, the improved visibility of users on this section of the A-8 on foggy days contributes to a reduction in the number of accidents and a reduction in their severity, which has a direct impact on society.

7. Synergies with other policies or instruments of public involvement.

The project has reinforced the action of other Funds, given that it has achieved a clear reinforcement of research, technological development and innovation:

With the help of European Regional Development Funds, the project has encouraged business investment in R&D&I, with up to a total of seven companies having participated in the project by developing links and synergies between companies, R&D centres and the higher education sector that have participated in the project. An investment has therefore been made in the development

of products requiring technological innovation and with direct application to a public service such as the A-8 motorway.

In addition, the Directorate General of Traffic of the Ministry of the Interior has installed two new developments on the same section of the A-8 on which the Pre-commercial Public Procurement for anti-fog protection systems on the A-8 motorway was carried out: on the one hand, a new totally innovative automated traffic diversion system, which since December 2016 has made it possible to establish and lift traffic diversions from the motorway to the N-634 road, between the junctions that delimit the section affected by fog (Mondoñedo and A Xesta) fully automatically, by remote control from the North-West Traffic Management Centre in A Coruña. On the other hand, in 2022 it has implemented a system of intelligent luminous side beacons with which it tries to reduce road cuts, consisting of the installation of pairs of specific luminous beacons (one in the median and the other on the edge), placed every 50 metres or so along the road, dividing it into cantons, in the style of railway signalling. These systems are complementary to the anti-fog systems of the Pre-commercial Public Procurement, and therefore, by means of a joint operation of all the systems, important synergies are produced in terms of increasing the exploitation of the motorway, by notably reducing the cut-off thresholds of the A-8, ensuring safe traffic conditions.

Likewise, the fact of being able to apply the innovative technology developed for this project in other parts of the road network with similar problems, as well as in other modes of transport and activities, leads to innovative synergies in the public transport sector, in particular, and in business activity, in general.

In conclusion, with European Regional Development Funds, open innovation through intelligent specialisation, and through support for theoretical and applied technological research, as has occurred in this project, there is a clear technological development and innovation associated with the project, which will have innovative synergies in other policies or instruments of public intervention.

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