

# Constructing Smooth Road Planning in Portugal

Ascendi Group uses a web portal to manage geographic data

Road construction and maintenance expert Ascendi Group manages a network of 3,000 km of transport infrastructure concessions, including responsibility for design, construction, funding, operation, and maintenance. Additionally, Ascendi developed special

skills in toll collection services, making them a world leader in private company toll collection by multi-lane free flow schemes. In Portugal, Ascendi Group is a leading player in road construction and maintenance, and has decisively contributed to the improvement and modernization of the country's road network.



## Long journeys to get critical information

With a large transportation network managed directly by Ascendi, the company had a huge amount of data it needed to store and manage, such as drawings, bulletins, and reports. Because Ascendi serves so many locations, employees often made several trips (sometimes three or four hours away) to capture data of the traffic flow at newly opened roads. Several assets were scattered throughout the company and most of the archives in paper or digital (CD/DVD) formats could only be shared at Ascendi's head offices. When branch offices needed information, multiple departments would often request the same data from the technical department.

To streamline this information flow, Ascendi searched for a single information source to replace paper and digital formats, and to more easily distribute data across its organization. Their goals were to:

- Create a platform comprising the life cycle of a motorway, giving Ascendi instant information concerning each stage of the roadway construction process.
- Establish a system that integrates all information from the company's multiple databases.
- Grant easy access to data using a web-based system.

## A single platform for data and maps

Initially, Ascendi needed to group all digital information (AutoCAD files) regarding the motorway design for its subsequent stage of the computer-aided design server. Ascendi worked with Hexagon to calibrate its entire network using GeoMedia® Transportation Manager to define the sub-stretches comprising its motorways network.

Once the team grouped the digital information, it added alphanumeric information, including georeferenced images, related to each item (motorway, interchanges, lots, and engineering structures) and began building its internal/external web application.

The first stage of the Ascendi Geographic Information System (GIS) site – called GISA – leveraged GeoMedia and a Microsoft® SQL Server® database. This new site incorporated highway data, such as extensions, interchanges, dates, and contracts, from the “construction” phase of its highways.



This stage of the project allowed Ascendi to archive planning and budgetary documents, create a shared data repository for design information, and globally manage the expropriated land parcels in terms of owners, field areas, delivery dates, and more. Ascendi was also able to enhance production control with the use of thematic maps.

Ascendi's next step was to further enhance GISA using GeoMedia WebMap Publisher and GeoMedia Professional. To do this, Ascendi developed a back office system to more easily insert files from motorway design categories, such as alignment, drainage, road signs, and more.

## Company wide access to compiled data

Ascendi could better represent vehicle accidents and other events along its highways using geometries generated in GeoMedia Transportation Manager. With these geometries, it connected the alphanumeric data in its "Exploration" databases to the publisher website. This let Ascendi monitor road sign conditions, safety equipment, and motorways along a determined section with a new video logging solution. With Ascendi's web portal, employees can analyze accidents as well as locations that have a record of large numbers of crashes, allowing them to better determine the cause of an accident. GISA also facilitates the analysis and evolution of several environmental factors – such as air, water, and noise surrounding a lane on the motorway – in the stages prior and after the construction, helping Ascendi prevent hazards on its roadways. "With GISA, we can better manage engineering structures," says José Revés, Engineering Board Director, Ascendi. "This system attributes a classification to our maintenance status, which helps us better account for the level of maintenance and/or repairs to our infrastructure in our yearly budgets."

"We can also determine the status and evolution of stability for a roadway structure, such as a containment wall, embankment, or slope," added Eliana Carreira, Senior Technician for Engineering at Ascendi.



GISA gives Ascendi a visual, real-time representation of its road networks.

Ascendi migrated its publisher website to Geospatial Portal plus GeoMedia WebMap Publisher Service and continues to develop modules, such as Pavements Management and Telematics, to display data from several "Exploration" and "Construction" databases. Ascendi is also incorporating select data from other existing divisions in the company, such as its Accounts and Administration division.

"With the aid of Hexagon, our GIS allows us to compile all of our information that was once spread across our organization in several formats," continues Carreira. "We now direct our data into a single platform that enables a higher level of staff interaction and improves smarter decision-making."

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