

Deloitte.

A smiling man in a blue button-down shirt and a headset is shown in a call center setting. He is holding a microphone to his mouth with his left hand and gesturing with his right hand. Behind him are several colorful, abstract brushstroke-like shapes in shades of pink, blue, green, and yellow. The background is a blurred office environment.

***MAJOR PORTUGUESE MOTORWAY
OPERATOR IMPROVES DATA-DRIVEN
DECISION-MAKING ON AWS BY
WORKING WITH DELOITTE***

Learn how Deloitte helped a Portuguese road infrastructure company implement a data lake to increase its operational efficiency and enhance customer service on AWS.

A Portuguese infrastructure company created a data lake on Amazon Web Services (AWS) with the help of AWS Partner [Deloitte](#), giving the company a single source of truth for its data. The major Portuguese motorway operator is recognized for its expertise in the management of road infrastructure assets and in the provision of tolling and operation and maintenance services, with 25 years of consolidated experience. It wanted improved analytics to make data-driven decisions and improve its customer service as it grew. With the new data architecture, the organization has greater data visibility and improved operational efficiency so that it can better manage its customer care and scale its data infrastructure.

BENEFITS

3,750

DASHBOARD VISUALIZATIONS

created in 3 months by 50 users

90% REDUCTION

in time to prepare 22 reports
reclaimed in FTE production



OPPORTUNITY | Working Alongside Deloitte to Create a Data Lake

When the major Portuguese motorway operator, which manages several highways in Portugal, wanted to make better data-driven decisions, it chose to look to the cloud for solutions. The motorway operator manages infrastructure assets and provides road-related services, such as toll collection and operation and maintenance activities, and is recognized as an innovator in its industry. The company was growing and looking to expand into new international markets, so it wanted a centralized, replicable data architecture to help with data-driven decision-making.

Although the company had data available on various aspects of its business, these data sources were siloed, and the company did not have the right tools to get the maximum value from its data. "Our business generates a significant volume of data, and although we already have a set of tools for data analysis and exploration, we lacked a modern, open, and scalable architecture that would let us embrace advanced data exploration, cross-reference and correlate information, and provide business areas with greater autonomy," says the head of business solutions and application development at the organization.

"A key point was the ability for this to be a growing investment, based on usage. We also wanted to increase our operational efficiency and enhance customer service by automating the production of key performance indicators, dashboards, and reports."

In 2021, the company engaged Deloitte Portugal to set the parameters for creating a data lake, which would eventually be implemented using AWS. Deloitte, an AWS Premier Consulting Partner, has been providing services globally to help customers solve complex challenges since 1845, operating in Portugal since the 1970s. "Together, we identified the client's pain points and ambitions, and we designed a data architecture that would solve the problems that we identified and that can answer any future challenges," says Pedro Gama, technical manager at Deloitte Portugal. After the initial engagement, Deloitte Portugal also won the request for proposal to implement the project, and in 2022, Deloitte Portugal and the motorway operator began setting up a data lake, the company's first cloud-based solution, on AWS.



SOLUTION | Saving Time and Improving Processes Using Data Analytics on AWS

Deloitte Portugal began the project by setting up the initial cloud infrastructure using [AWS CloudFormation](#), which speeds up cloud provisioning with infrastructure as code. The data lake was created using [AWS Lake Formation](#), a service to centrally govern, secure, and share data for analytics and machine learning. When the initial infrastructure was in place, Deloitte Portugal worked with the motorway operator to define the key performance indicators and requirements for its first two use cases. Together, they selected the data sources that would need to be ingested into the data lake and designed a data model for them. Deloitte Portugal also implemented data extract, transform, load systems using [AWS Glue](#), a serverless data integration service. After data could be extracted from the correct data sources, it was connected to the motorway operator’s third-party dashboard solution using [Amazon AppFlow](#), a service to automate data flows between software-as-a-service solutions and AWS services. The third-party solution could then be used to create dashboards and visualizations for its data.

With the data lake in place, the solution was implemented for two initial use cases: analyzing its customer care services and its debt collection processes. In customer care, the motorway operator can now use data to understand why customers contact the company and can create services to better answer callers’ questions. It can also evaluate how well its customer service agents are able to meet customer needs and reduce not only call times but also the overall quantity of calls to its call center. In debt collection, the motorway operator is using data to segment and better understand customer behavior, adjusting service and customer approach. Its processes are now more effective because of the data insights that it gained using the data lake on AWS.

By working with Deloitte, the major Portuguese road infrastructure company now has a single point of truth for data across the company—and it can view and visualize that data with much more ease. The system automatically produces reports and provides insight into key performance indicators, and the data visualization tools and dashboards are simpler for both technical and nontechnical users to interpret. Employees save a significant amount of time that they previously spent manually gathering data and running analyses—time that they can now use to focus on more strategic initiatives (the equivalent of one full-time employee within the scope of the first two use cases). The company achieved a 90 percent reduction in reporting time for the 22 reports within the scope of the project, reducing work hours from 90 to 10 when preparing client reports. Additionally, Deloitte Portugal designed the solution for self-service. The teams gained greater autonomy in querying and exploring data through a gradual process of empowerment, reducing the need for support from the specialized IT team. In 3 months, 50 users across the company created over 3,750 dashboard visualizations with the new solution.

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OUTCOME | Making Data-Driven Decisions and Expanding Globally

With its data lake on AWS, the road infrastructure company now has the tools to enhance its business decision-making. It has streamlined its processes for data analysis and reporting, which leads to faster decision-making and resource allocation. Instead of manually collecting data from siloed sources, the company now has a single view for the use case’s data across the organization and a cloud architecture that can extend to new regions as the company grows internationally. “Using AWS, the client can easily expand the same solutions for different business units across the world,” says Gama.

Now that the first two use cases for the data lake have proven themselves, other business units are looking to connect their systems to the data lake so that their data can be used for analysis across the company.

Using the data lake on AWS, the motorway operator can make better, data-driven decisions and continue improving its operational efficiency to stay competitive as it expands internationally to new markets.

“By choosing AWS and Deloitte, we were able to equip the company with a modern, scalable business intelligence and analytics architecture that provides us with agility and the ability to integrate with multiple information systems, adapting to the dynamics of the company’s business,” says Ricardo Sarmiento, head of business solutions and application development at the infrastructure company. “We are convinced that we made the right choice for the challenges we will face in this area in the coming times.”

AWS Services Used



AWS Lake Formation



Amazon AppFlow



AWS CloudFormation



AWS Glue

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—Head of Business Solutions and Application Development at the major Portuguese road infrastructure company

About Deloitte

Founded in 1845, Deloitte is one of the largest professional services companies in the world, present in over 150 countries and territories globally. Deloitte is an AWS Premier Consulting Partner and is committed to creating impact by supporting clients to solve complex challenges.