

Autostrade per l'Italia Leverages Data for Safer, Smarter Roads

Autostrade per l'Italia is one of Europe's leading toll motorway operators, managing approximately 3,000 kilometers of roadways in Italy. The prominent toll road concessionaire and its subsidiaries are dedicated to delivering safe, efficient, and sustainable road infrastructures to benefit motorists and the broader transportation industry.

In 2020, Autostrade per l'Italia embarked on an ambitious digital transformation journey to harness the power of data, modernize its technology ecosystem, and migrate to the cloud. This journey encountered several pain points that needed to be resolved.



Key Facts About Autostrade per l'Italia

-  €4.8 billion annual revenue
-  3,000 kilometers of motorways in Italy
-  9,000 employees

The Challenge: Overcoming Operational Inefficiencies and Migrating to Cloud

Autostrade per l'Italia faced various challenges due to the prevalence of manual traffic management, safety, and maintenance processes. These inefficient processes led to operational risks that could have been reduced by standardizing processes between Autostrade per l'Italia and its subsidiaries.

Furthermore, the user experience was not sufficiently digitized for travelers, employees, and field operators, while fragmented data led to asynchronous reporting and low AI adoption, which further amplified inefficiencies. In addition, legacy on-premises systems limited the connectivity of the organization's infrastructures.

Additional challenges included:

- **Difficulties managing reporting.** The company faced challenges managing various vertical reporting systems that allowed for the independent analysis of different business areas. The approach was functional, but not scalable. The approach proved inadequate when top management requested an automated and comprehensive system to calculate KPIs across all business areas.
- **Migrating to the cloud.** Due to the existing architecture's inability to implement a robust and automated system, the company embraced a new journey toward a digital transformation—with a cloud migration designed to integrate all available data while providing scalability. This is especially crucial for a complex organization like Autostrade per l'Italia, which deals with vast amounts of data from many different sources.

To address these challenges, Autostrade per l'Italia prioritized cloud migration and data consolidation to modernize operations and support its vast and diverse data ecosystem.

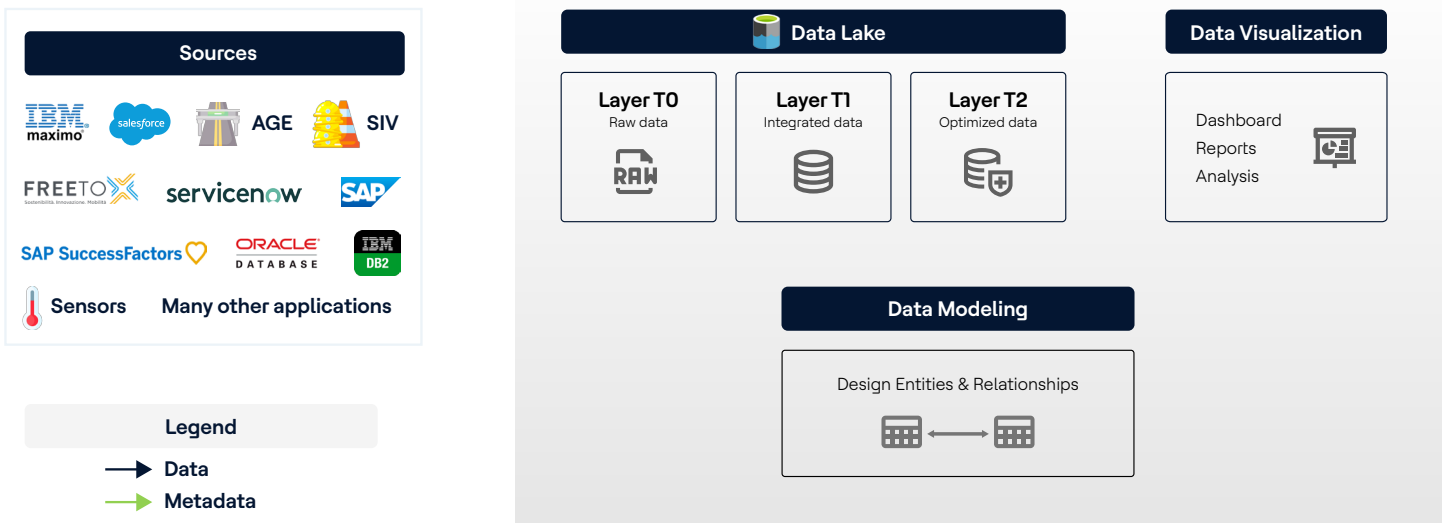


Figure 1: From Raw Data to Data Visualization

The Solution: Embarking on a Digital Transformation

Despite all its data and process challenges, Autostrade per l'Italia saw an opportunity to modernize its operations, processes, and technologies through a digital transformation. That's why, starting in 2020, it strategically invested more than €200 million over three years to launch three transformation programs simultaneously.

The programs were:

- **Next to digital.** A top priority was to digitize the company's operational and business processes, with over 130 digital products in the pipeline for delivery.
- **Data and analytics (DnA).** This focus area emphasizes leveraging data to extract valuable insights. The program also involved enhancing corporate data, evolving data management platforms, and applying analytics and artificial intelligence (AI) for insights.
- **IT modernization.** The modernization strategy called for migrating the technology platform to the cloud. It also included modernizing the organization's technological ecosystem and phasing out legacy technologies while introducing modular and scalable architectures.

These programs relied on five key principles that were crucial to success:

- **Data democratization.** Make data available and accessible to anyone in the company who needs it.
- **Informed decision-making.** Infuse a culture of decision-making based on valuable, quality information rather than intuition or experience.
- **New data-driven business.** Transform the processes and identification of new business opportunities using trusted data.
- **Data monetization.** Promote data as an asset for optimization, cost savings, and opportunities for external sales, exchanges, or open sharing, such as open data venues.
- **R&D and partnerships.** Leverage the expertise of various internal and external providers, creating a network of partners that can collaboratively use data to achieve their goals.

Autostrade per l'Italia launched the digital transformation by building a data analytics platform that ingested data from various sources and applications. These included IBM DB2, Salesforce, sensors, SAP, and more. The data was transferred to the cloud in its raw form. This is the initial stage of its data lake process, in which raw data is progressively processed, integrated, and optimized until it is ready for visualization (Figure 1).

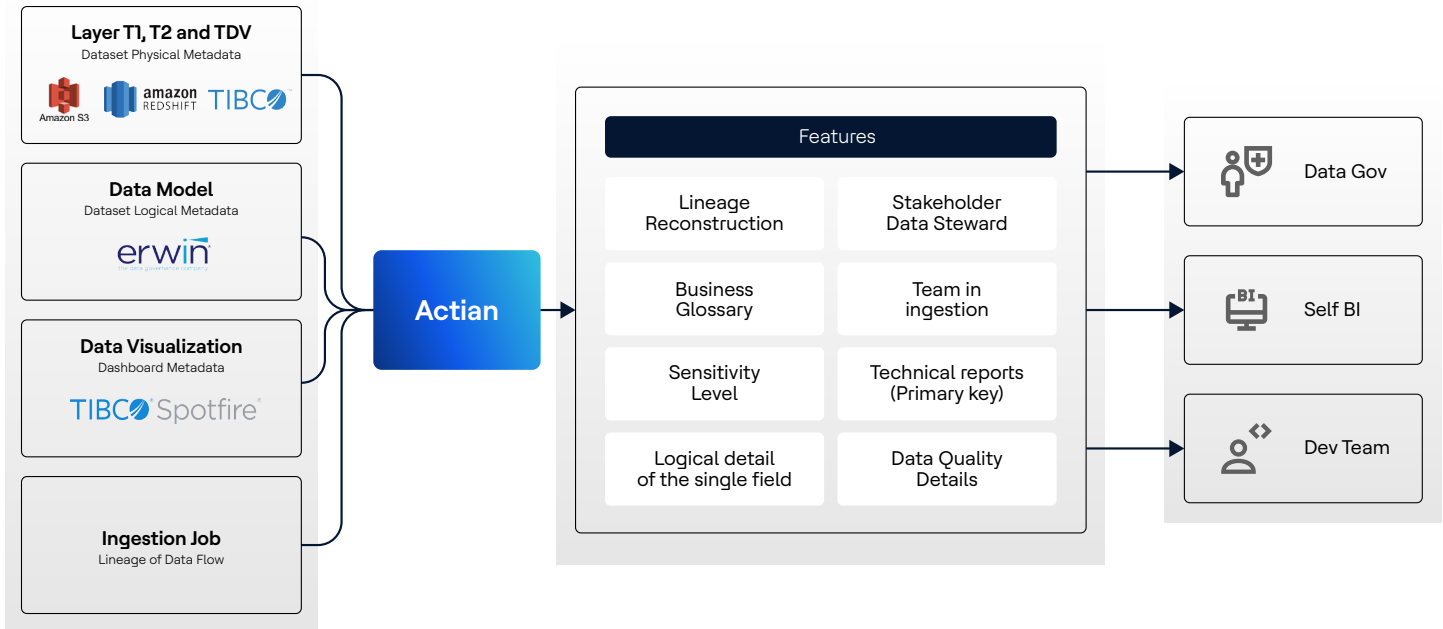


Figure 2: Serving a Variety of Data Users

In the next step, a data visualization component enables users to query the data interactively. This allows users to extract valuable insights from the data with minimal effort and maximum efficiency.

Finally, the third module of the data analytics platform is a data modeling component that allows Autostrade per l'Italia to capture metadata. This includes datasets' structure, meaning, primary keys, relationships, and other information.

As Autostrade per l'Italia continued to pour data into its data lake, data growth became explosive. This made managing interdependencies between different projects and systems increasingly challenging. To address this, Autostrade per l'Italia needed to introduce a metadata curation tool to document datasets for their meaning, properties, lineage, and other critical information.

The Benefits: Supporting Metadata and Enabling Easy Data Access

After thoroughly evaluating various options for a metadata solution, Autostrade per l'Italia chose the Actian Data Intelligence Platform and its data catalog to solve its data challenges.

Three key reasons drove the decision to implement the Actian Data Intelligence Platform:

- **The user-friendly interface.** Autostrade per l'Italia needed a solution accessible to both technical and business teams. The company involved business stakeholders in the decision-making process, and the Actian Data Intelligence Platform was rated as the most intuitive and easy-to-navigate solution, enabling a self-service approach to data.
- **A flexible metamodel.** The platform offers a simple yet very flexible metamodel with basic concepts. It allows organizations to customize and enrich metadata with specific entities easily, enabling users to choose the level of privacy and sensitivity for their data.
- **Cost-effectiveness.** The platform is more affordable than other solutions that Autostrade per l'Italia evaluated, making it a cost-effective solution for its needs.

The Actian Data Intelligence Platform gives Autostrade per l'Italia an accessible, adaptable, and affordable solution to address its data challenges. By prioritizing the user experience and flexibility, the platform enables users to optimize metadata to drive greater value from data assets.

Meeting the Needs of Diverse Teams and Data Users

The Actian Data Intelligence Platform is the gateway to accessing data at the Italian organization. It provides a solution that curates various types of metadata, from business glossaries and data lineage to data classification and meanings. This metadata is primarily captured automatically through scanners that retrieve information from multiple platforms.

Furthermore, the Actian Data Intelligence Platform caters to different types of users at Autostrade per l'Italia. The data governance team oversees the platform, followed by business users who rely on self-service tools to research and analyze data (Figure 2).

Developers also use the platform to create pipelines, dashboards, and artificial intelligence-based solutions. They access data already in the data lake to prevent duplication and facilitate information retrieval. The platform has become vital to data usage at Autostrade per l'Italia, enabling easy access to and understanding of data sets.

Autostrade per l'Italia implemented a functional data catalog within six months, enabling a high level of automation—around 90%. Over 200 business users adopted the data catalog, marking a significant milestone in the organization's digital transformation journey.

"In our opinion, only the business functions can truly transform the company into a data-driven company. Actian's Data Catalog is the tool they need—efficient and usable—so that they are fully aware of the data they have available. It builds the bridge between business and data at Autostrade. From a business perspective, it is fast, complete, easy to understand, and user-friendly. From an IT perspective, it is agile, scalable, and continuously upgradeable."

– Ruben Marco Ganzaroli, Chief Data Officer,
Autostrade per l'Italia



Platform Connectivity

- AWS Glue
- AWS S3
- AWS Redshift
- Erwin Data Modeler
- MySQL
- Tibco Data Virtualization
- Tibco Spotfire

Stakeholders Using the Data Discovery Platform

- Chief data officer
- Head of data product
- Data governance team
- Business analysts
- Business users

About Actian

Actian empowers enterprises to confidently manage and govern data at scale. Organizations trust Actian data management and data intelligence solutions to streamline complex data environments and accelerate the delivery of AI-ready data. Designed to be flexible, Actian solutions integrate seamlessly and perform reliably across on-premises, cloud and hybrid environments. Learn more about Actian, the data division of HCLSoftware, at actian.com.

