CASE STUDY

Istat | Istituto Nazionale di Statistica

www.Istat.it

Industry
Financial Services

Profile
The Italian National Institute of Statistics (Istat), a public research organization, is the main producer of official statistics in the service of citizens and public policymakers in Italy. The institute operates in complete independence and is in continuous interaction with academic and scientific communities. Since 1989, Istat has been directing, coordinating, and providing technical assistance and training within the National Statistical System (Sistan). To follow best international practices, the institute is engaged in an industrial, professional, and cultural "reshuffle," i.e., the modernization of statistical information production processes. Istat is by far the largest producer of statistical information in Italy and is an active member of the European Statistical System, coordinated by Eurostat.

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The Italian National Institute of Statistics (Istat) Leverages the Denodo Platform to Enrich Information for Citizen Services and Public Policy Making

To minimize inefficiencies and improve the quality of insights generated, the Italian National Institute of Statistics (Istat) introduced new technological frameworks that revamped its approach towards data collection and statistical analysis. Keep reading to learn how the Denodo Platform, sitting at the heart of this new framework, enabled Istat to integrate its vast heterogeneous data sources, break down information silos, improve the efficiency of data collection and consumption, and support new use cases for data.

Business Need

As the main producer of official statistics in Italy, Istat keeps track of the population and economic censuses, and is also responsible for performing a variety of social, economic, and environmental surveys and analyses. Like many other national statistical institutes (NSIs) of the most advanced countries, Istat is experiencing a period of profound transformation triggered by a difficult economic and financial situation and an evolving technological environment. These conditions make it challenging for Istat to measure a society that is growing increasingly complex and diverse; exploit the wealth of information, including unstructured data; leverage new methodological and technological tools; become flexible, agile, and cost-efficient; and tackle the crisis of high costs and lower response rates associated with traditional data collection systems.

In addition, Italian law recently required Istat must now produce a census report every year, using data from the Basic Population register and statistical surveys, rather than producing census reports on a decennial basis. The earlier censuses were based on universal suffrage, but now they are based on sampling approaches. To facilitate the change, Istat needed to modernize its data infrastructure, and part of that plan involved taking data from administrative sources and statistical surveys and integrating them into a system of registers (SIR) that cover the appropriate demographic, social, economic, and environmental domains. The new Statistical Base Register of territorial and geographical entities of Istat (RSBL) is a multidimensional register that integrates addresses, regular grids, microzones, buildings and housing units, administrative zones, and statistical and functional zones.

Through this modernization program, Istat hopes to enrich the range and quality of information to improve the effectiveness and efficiency of the organization's overall activities. Traditionally, Istat managed more than 200 administrative sources that had to be systematized, organized, and combined with the data coming from the survey and censuses. Istat needed to restructure the traditional data sources, but the company also became increasingly aware of the opportunities generated by new types of data such as web data, data from the internet of things (IoT), and social data. Istat therefore needed a way to integrate all of the data into a single system to improve the quality of existing statistics and contribute to the deployment of the new ones.

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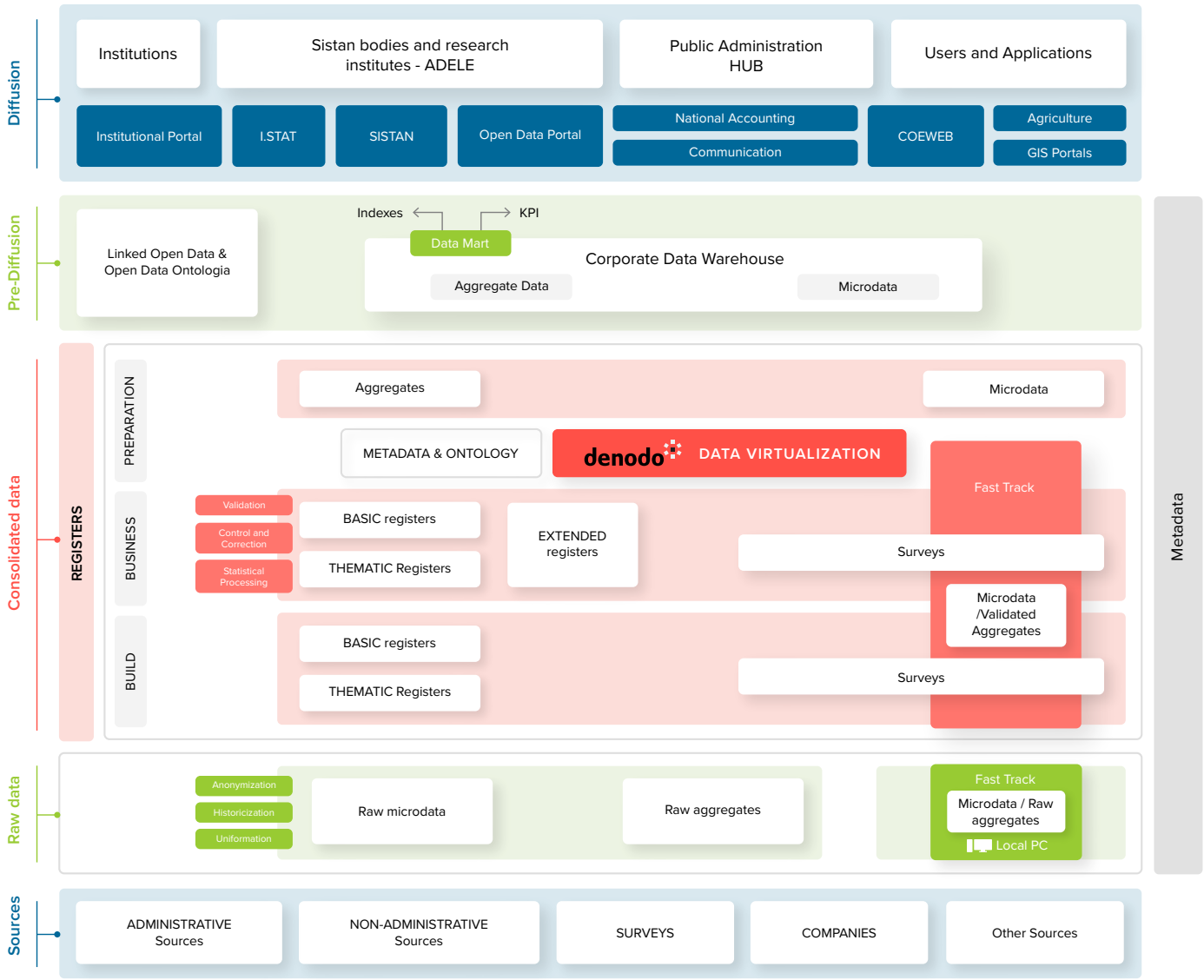
The Solution

Istat launched a comprehensive modernization project in 2016. The process involved first developing a common language for a single reference dictionary followed by the creation of seven thematic registers (business, individuals, places, etc.). Next, Istat redefined the reference architecture throughout the entire data life cycle: collection, validation, manipulation, and dissemination. Istat reorganized its entire data framework, starting from the logic that integrates administrative and survey data sources. The new framework redefined the process of data acquisition, data processing, and data governance. The striking feature of this framework has been data integration through data virtualization (without building physical connections and replicating data), through the Denodo Platform, to aggregate data from heterogeneous data sources and create a single point of data access. The data virtualization layer decoupled the physical state of the data from the logical information, without the costly replication of data.

Figure1: The modern data architecture at Istat with Denodo's data virtualization layer aggregating data from heterogeneous data sources and acting as the single source of data for the analytical requirements of the organization.



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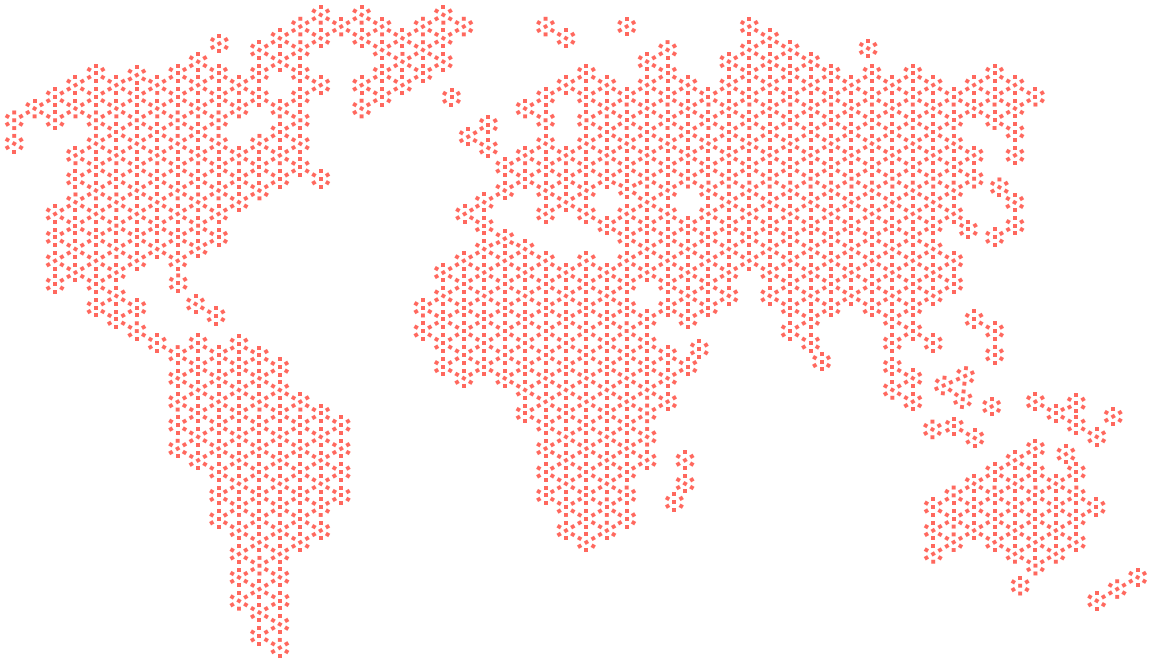
Benefits:

- The Denodo Platform has made it possible for Istat to reduce the cost of the investment, increase the quality of statistics produced, and open new opportunities for data exploitation, making the institute ready to seize the information potential of big data.
- With the virtual layer acting as a single source of data, data governance has become less tedious and more easily manageable for Istat, making it possible for the company to concentrate all data governance and data quality monitoring activities on the only available data access layer.
- The new data architecture enabled Istat to implement new data use cases such as a consumer price survey, by directly connecting to data from the systems on the retailer's end and routing that data to Istat. It has considerably reduced the number of operators dedicated to this activity, as the previous process involved considerable manual labor.

> *"The Denodo Platform has eased the data integration process at Istat and enabled more complex and rigid data systems to be connected for the statistical analysis of demographic, economic, and social data."*
>
> - **Massimo Fedeli,** CIO of Istat



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Denodo Technologies is the leader in data virtualization providing agile, high performance data integration, data abstraction, and real-time data services across the broadest range of enterprise, cloud, big data, and unstructured data sources at half the cost of traditional approaches. Denodo's customers across every major industry have gained significant business agility and ROI.

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