



Data Enrichment for Better Real Estate Management

The **Agenzia del Demanio (State Property Agency)**, in cooperation with **Movyon**, introduces a *data-centric* approach

The mission

At the core of the **Agenzia del Demanio's** mission is the knowledge of the managed real estate assets and the digital development of processes and information related to real estate management. The application of innovative technologies can increase knowledge of real estate and transform management and supervision processes so as to make the Agenzia del Demanio a fully data-centric organisation.

With this objective in mind, **the Agenzia del Demanio's Workshop for the Regeneration of Public Property** launched the pilot project 'Enrichment of Data' in 2023, which involved the study and experimental validation of technologically advanced means to **increase information on state property** and enable new digital services dedicated to the **valorisation of real estate assets**.

Essential mission requirements include:

- **the scalability of data enrichment processes** that must be applied to the whole set of items under the Agency's management
- the use of available and possibly free data sources
- the full interoperability of data and services with the **Agency's information systems**

For this project, the Agenzia del Demanio chose to collaborate with **Movyon**, the **Autostrade per l'Italia Group's** research and innovation hub, leader in the development of Intelligent Transport Systems solutions and the digital management of critical infrastructure on motorway networks. Movyon has 300

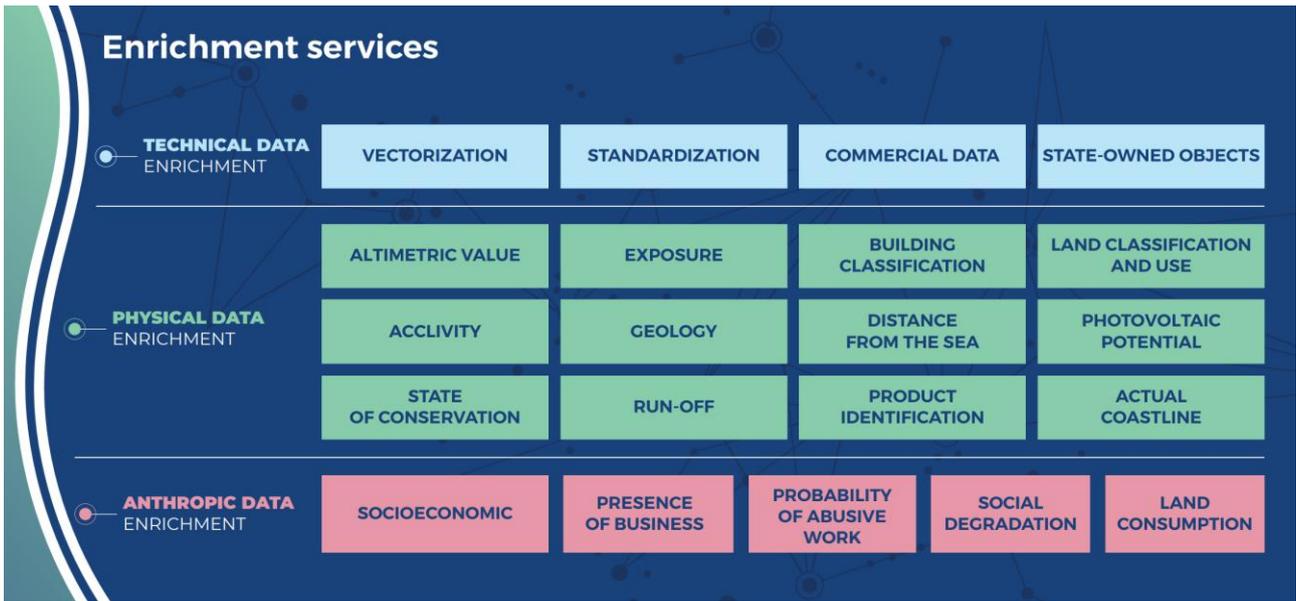
highly qualified professionals with multiple active projects in Italy, Europe, South America and North Africa.

To face these challenges, Movyon has a team of top-level partners, Italian excellences that have been innovating for years in the technological fields of interest: **EbWorld**, which has been working for over 40 years in the development of cartographic applications, cadastral data management and geo-referenced management of data relating to large real estate assets; **Flysight** of the Flyby group, which has been working for over 20 years in the processing of satellite and aerodata images developing decision support systems; **Strategic Management Partners**, an Italian consultancy company specialised in supporting the digital transformation of processes with a data-centric approach. In addition to these partners, other Italian SMEs offered expertise and contributions on specific technologies and methodologies applied in the testing.

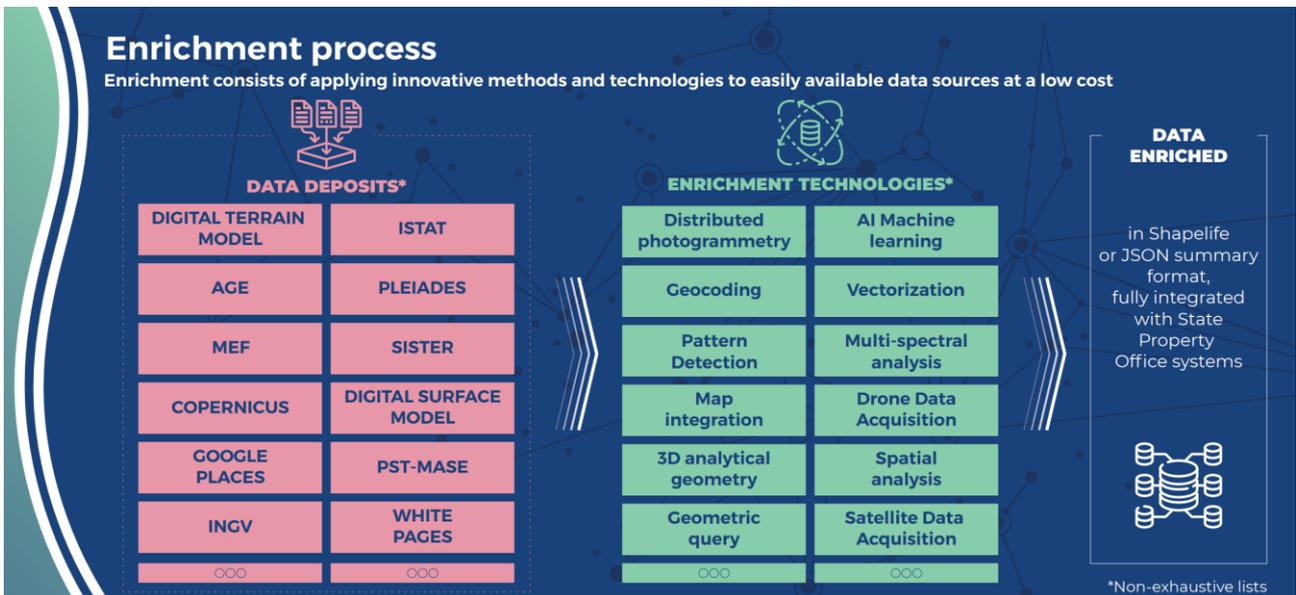
The solution

Enrichment consists in applying appropriate methods and technologies that integrate and correlate the source data with other readily available data sources, such as Copernicus satellite images, Istat data, MEF data, INGV data and others, in order to obtain **enriched data**:

- in the **technical** domain, in terms of geolocation and vectorialisation of the asset to precisely define its geometry and correctly place it on a map
- in the **physical** sphere, by associating a multiplicity of physical properties with the asset, such as its altitude, slope, distance from the sea, state of preservation and many others
- in the **anthropic** sphere, associating to the asset data relating to the socio-economic context in which it is located, such as the presence of economic activities, social degradation, land use, and others, from which it is also possible to infer the likelihood of occupation and abuse.



The technologies mastered and used by the Movyon Team include geocoding, distributed photogrammetry, pattern detection by means of Machine Learning, 3D Analytical Geometry, cartographic integration for vectorialisation, the processing of multispectral satellite images, and the definition and execution of survey campaigns using drones.



The methodology applied is based on the definition of a **data taxonomy** that leads to a **classification of assets** in which each class (or cluster) is defined

based on the wealth of data verified and available for the asset belonging to that class.

Enrichment consists of one or more **services** that enable moving from one class to another, increasing the available information. This approach is designed to be scalable and can be industrialised by defining the **catalogue of enrichment services**, modelling the requests that can be fulfilled in terms of geography, class of service (technical, physical, anthropic), type of service (recurring, campaign, one-off).

The experimentation

The experimentation directly and actively involved the Lombardy, Veneto and Campania Regional Directorates of the Agenzia del Demanio with the continuous support and supervision of the Digital Transformation Directorate and the Workshop for the Regeneration of Public Property.

In the first phase of the experimentation from May to October 2023, which involved the Lombardy and Veneto Regional Directorates, the first step was a list of state property records to which one or more services were applied. In particular, the use of low-cost and easily repeatable techniques for the enrichment of physical data on large-area land in the Cortina area should be noted.

In the second phase, which involved the Campania Regional Directorate from October 2023 to February 2024, an area of the Pozzuoli coastline was assigned and services were also applied to non-state land and buildings for the purpose of identifying potential anomaly situations.

The experimentation, sponsored by Movyon, produced a first version of taxonomy and classification of data and a catalogue of services, as well as a dataset enriched on the basis of the input received from the Regional Directorates.

The Future

The approach studied and tested in the project is scalable and designed to be industrialised with the construction of a **hub of enrichment services**,

retrievable from existing systems and **open** to contributions from other entities providing new data sources or additional and complementary enrichment services.

The 'Data Enrichment' experimental project has demonstrated the concrete applicability of public and private collaboration to support the actions of the Agenzia del Demanio in its role as a fundamental agent of change in the digital transformation of public property management processes and of the Agency's strategies for enhancing the value of the real estate assets it manages.

Land use exploitation map



Social vulnerability map



360° survey for photovoltaic potential

