

DIGITIZATION OF PUBLIC SERVICES THROUGH THE SIT

(Territorial Information System)

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SUMMARY

In Italy, the PNRR (National Recovery and Resilience Plan) is a plan that includes among its priority objectives the modernization of the Public Administration through the digitization and innovation of services. In this context, a central role is assigned to the Territorial Information Systems (SIT), technological tools capable of collecting, managing, and analyzing geospatial data to support planning, management, and administrative transparency.

The SIT represents the digital platform that allows public authorities to integrate cartographic, cadastral, urban planning, and environmental information in a single computer environment. Thanks to these functionalities, local and central administrations can have an updated and detailed view of the territory, useful for urban planning, emergency management, and the protection and enhancement of natural resources. Therefore, the innovative element of the SIT is not only the digitization of cartographic data, but the possibility to cross-reference information from different databases, creating a complete, updated, and shared picture of the territory. From an operational point of view, the SIT allows for digitizing administrative processes, promoting transparency, supporting strategic planning, improving collaboration between entities, managing emergencies in real time. From a technological point of view, the SIT exploits open standards and interoperable solutions that allow integration with the major national systems, creating an integrated digital ecosystem. The SIT, therefore, fits into the logic of "digital citizenship" meaning that through portals and applications, citizens can access territorial information, submit applications, or follow the status of their applications without physically going to the offices. This reduces waiting times, lowers administrative costs and improves confidence in the Public Administration.

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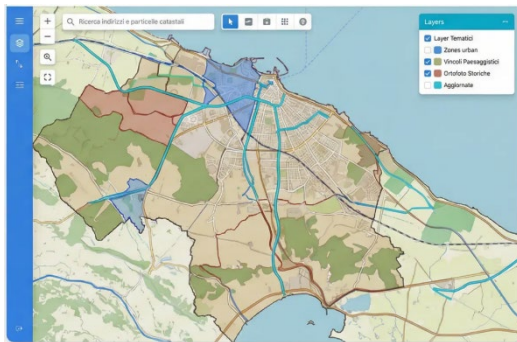
1. INTRODUCTION

The digitalization of public administration represents a key strategic axis for improving the efficiency, transparency, and quality of services provided to citizens and businesses. In Italy, this process has been significantly accelerated by the National Recovery and Resilience Plan (PNRR), which identifies digital transformation as a key tool for modernizing the administrative system and reducing the technological divide that has accumulated over the years.

In this context, the Geographic Information System (GIS) plays a central role, serving as a strategic digital infrastructure for managing, analyzing, and sharing spatial information. The territory, understood as a complex set of physical, environmental, urban, and socioeconomic elements, thus becomes a truly dynamic database to support public decisions.



2. THE TERRITORIAL INFORMATION SYSTEM



The Territorial Information System (SIT) is an IT platform based on GIS (Geographic Information System) technologies that enables the collection, storage, processing, and representation of georeferenced data. Its distinctive feature is the integration of information from various sources (such as technical mapping, land registry, urban planning tools, environmental data, infrastructure, and networks) within a single, interoperable digital environment.

Unlike simple cartographic digitalization, the SIT introduces a logic of data integration and correlation, allowing for advanced spatial analysis and a multi-level interpretation of the territory. This enables administrations to move from dispersed information management to a unified and shared vision.

2.1 THE ROLE OF SIT IN THE DIGITIZATION OF PUBLIC SERVICES

From an operational standpoint, the SIT contributes decisively to the digitalization of public services and possesses the following characteristics:

2.1.1 Simplification and automation of administrative procedures

One of the primary benefits of the SIT is the simplification of administrative processes. Building permits, urban planning, and land registry procedures can be managed digitally, drastically reducing paper documentation and processing times. Immediate access to territorial information allows municipal technicians to verify constraints, land use, and urban compliance quickly and accurately.

2.1.2 Transparency and access to all information

The SIT promotes greater administrative transparency through the publication of interactive mapping portals. Citizens, professionals, and businesses can consult urban development plans, landscape constraints, buildable areas, risk zones, and public services online, reducing the need for physical visits to offices and improving the relationship between the administration and users.

2.1.3 Support for planning and land management

Thanks to spatial analysis functionalities, the SIT represents a fundamental tool for strategic planning. Administrations can simulate urban development scenarios, evaluate the impact of new infrastructure, plan sustainable mobility, and manage environmental risks—such as floods, landslides, and fires—more effectively.



2.1.4 Interoperability and institutional cooperation

The SIT is part of a broader digital ecosystem based on open and interoperable standards. Integration with national systems such as the Digital Land Registry, the National Resident Population Registry (ANPR), and environmental databases allows for a continuous exchange of information between different entities, reducing duplication, inconsistencies, and inefficiencies.

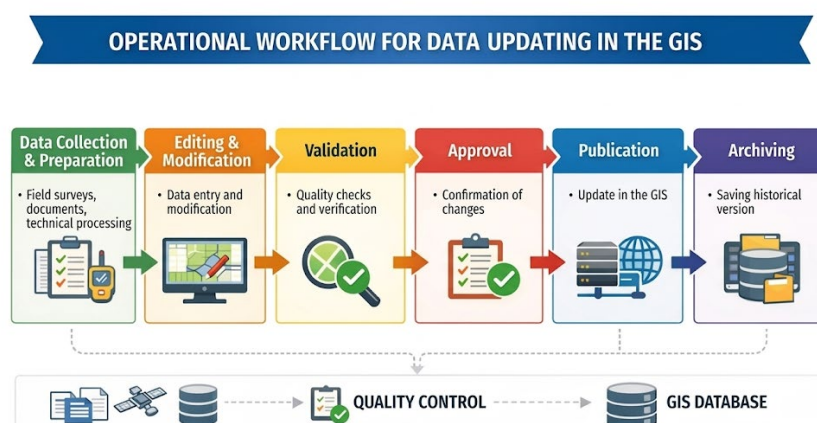
2.1.5 Emergency management and civil protection

In emergency situations, the SIT proves to be an essential tool for decision support. The ability to monitor the territory in real-time, overlaying data on infrastructure, population, and risks, allows for the planning of timely and effective interventions, improving the response capacity of Civil Protection.

2.2 FRAMEWORK IN THE CONTEXT OF THE PNRR AND DIGITAL CITIZENSHIP

The SIT is fully consistent with the objectives of the PNRR (National Recovery and Resilience Plan), particularly with missions dedicated to the digitalization and innovation of Public Administration. Through digital platforms and online services, the citizen becomes an active part of the administrative process, gaining access to territorial information, submitting applications, and monitoring the status of procedures digitally. This approach strengthens the concept of digital citizenship and helps increase trust in institutions.

2.3 OPERATIONAL WORKFLOW FOR ACCESSING AND UPDATING DATA IN THE TERRITORIAL INFORMATION SYSTEM (SIT)



To ensure reliability, consistency, and continuous updating of information, system access and data modification follow a structured and controlled operational workflow, described below:

2.3.1 Access to the Territorial Information System

Access to the SIT is regulated by authentication procedures that guarantee data security and proper user profiling. Users, whether internal or external to the organization, submit an access request specifying the purpose of the use and the type of operations to be performed. Following approval, the system administrator creates the user account and assigns an authorization profile consistent with their role.

Access to the system is generally via a web GIS platform or desktop GIS software connected to the GIS services. During authentication, the system verifies the user's identity and only enables the layers and features provided for by the assigned profile, distinguishing between users with access only and users authorized to edit data.

2.3.2 Data preparation and acquisition

Before updating, spatial data is collected from official sources (field surveys, technical processing, administrative documents, or information flows from other information systems). The acquired data (generally in Shapefile, GeoPackage, georeferenced CSV, or DXF formats) undergoes a preliminary check to verify its completeness, geometric accuracy, cartographic reference system, and compliance with the standards adopted by the GIS. This phase is essential to ensure the correct integration of the new data into the existing territorial database.

2.3.3 Updating data in the GIS

Data updates are performed through direct editing on authorized thematic layers and can be performed by internal technical departments (urban planning, public works, environment), authorized external parties (professionals, service providers), and automated systems connected to other databases. The authorized user then inserts new geometries, modifies existing ones, and updates the associated alphanumeric information. During editing, the system automatically applies validation rules, including topological checks (no unauthorized overlaps, correct intersections, compliance with spatial tolerances) and attribute constraints (mandatory fields, allowed value domains). These checks help reduce errors and maintain high geographic data quality.

2.3.4 Saving, versioning (“version control”) and traceability

Changes made to the data are saved according to a versioning system that allows you to distinguish between working versions and the official database version. Each update operation is tracked by the system, which records the author of the change, the date, time, and type of intervention performed. This mechanism ensures the traceability of operations and allows, if necessary, the restoration of previous versions of the data.

2.3.5 Quality control and validation



Once the editing phase is complete, the updated data is subjected to quality control by technical staff acting as validators. This check includes geometric accuracy, information consistency, and compliance with applicable regulations and standards. If successful, the changes are approved and consolidated into the official SIT database. If anomalies or inconsistencies are discovered, the data is returned to the operator for the necessary corrections.

2.3.6 Publication and dissemination of data

The validated data is made available to authorized users and, where applicable, published via standard cartographic services (WMS, WFS) or consultation portals. Updating the layers automatically aligns the applications and services that use the GIS information, ensuring the dissemination of always up-to-date data.

2.3.7 Storage and maintenance

The system includes the storage of a history of changes and periodic backups of the database and associated services. Additionally, we are conducting monitoring and maintenance activities to ensure overall system consistency, performance efficiency, and continuous adaptation to regulatory and technological developments.

3. CASE STUDY: THE SIT OF THE BARI METROPOLITAN AREA

The Territorial Information System of the Bari Metropolitan Area is a web-based platform that allows administrators, technicians, professionals, and citizens to access municipal territorial information in an integrated manner.

The platform offers an interactive web map with various viewing features, including zoom, layer overlay, and detailed consultation of territorial features. For example, users can search for addresses or land registry parcels, consult historical and updated orthophotos, and view landscape, urban planning, and cadastral constraints.

The portal exposes WMS services that allow you to connect the GIS cartographic data to external GIS software (for example QGIS or ArcGIS) via service links: this allows technicians and professionals to integrate the GIS data within their cartographic and planning projects.



3.1 SPECIFIC CONTENTS FOR THE MUNICIPALITY OF BARI

In the specific case of the Municipality of Bari, the SIT has the following main characteristics:

3.1.1 Territorial and administrative context

The Municipality of Bari, the capital of the Puglia Region, is a complex urban area, characterized by high population density, a complex infrastructure system, and a coastal area subject to specific environmental challenges. In this context, the adoption of a Geographic Information System is a strategic choice for improving territorial governance and the quality of public services.

3.1.2 Implementation of the municipal SIT

In recent years, the Municipality of Bari has initiated a process of progressively digitizing its territorial information, integrating urban planning, cadastral, and environmental data into a municipal GIS. This system allows technical offices to access an updated and shared database, reducing information access times and improving coordination between the various administrative sectors.

3.1.3 Digital services for citizens and professionals

Through the SIT (Site Information System), the Municipality of Bari has made online map consultation services available, allowing citizens and professionals to verify the urban planning destination of properties, the presence of restrictions, and the provisions of planning instruments. This has contributed to greater transparency and a reduction in requests for information at municipal offices.

3.1.4 Support for urban planning and sustainability

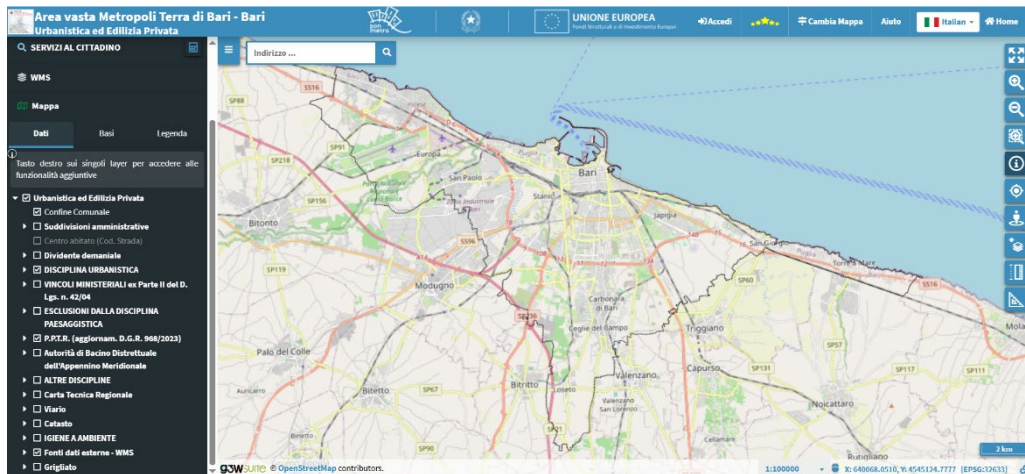
The Municipality of Bari's GIS provides valuable support for urban planning, allowing for analysis of the evolution of the built environment, the distribution of services, and environmental issues. Specifically, territorial data analysis can support policies for urban regeneration, sustainable mobility, and climate change adaptation—issues of great importance for a coastal city like Bari.

3.1.5 Benefits and future prospects

The experience of the Municipality of Bari highlights how the GIS can serve as an example of administrative innovation, improving internal efficiency and the quality of services offered. Looking ahead, further integration with regional and national systems, as well as the adoption

of advanced analytics tools and open data, could further strengthen the GIS's role as a strategic infrastructure for sustainable urban development.

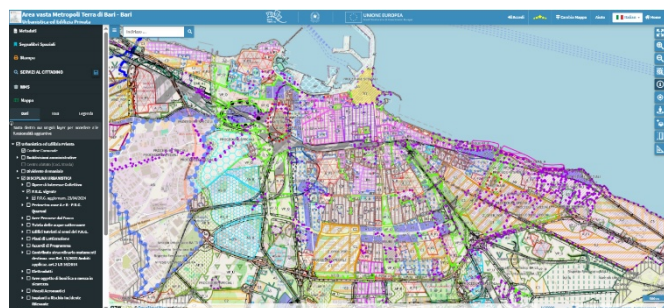
3.2 TERRITORIAL INFORMATION FROM THE SIT OF BARI



Thanks to the online platform, integrated consultation of territorial information is possible, and more specifically:

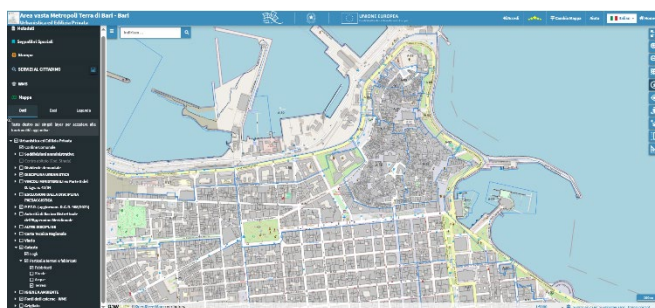
3.2.1 General cartography and urban planning tools

Consultation of the General Regulatory Plan and other planning tools, providing a clear and up-to-date overview of land use destinations.



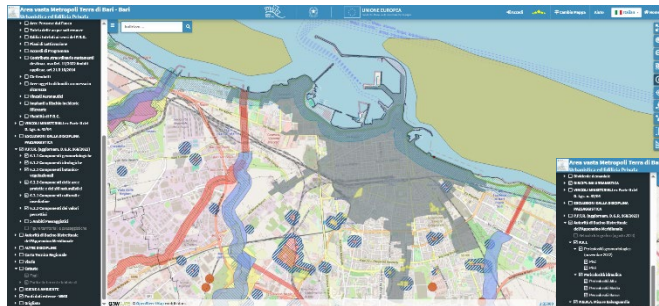
3.2.2 Cadastral data and parts

The integration of cadastral data allows administrative and fiscal information to be associated with territorial elements, simplifying investigation activities.

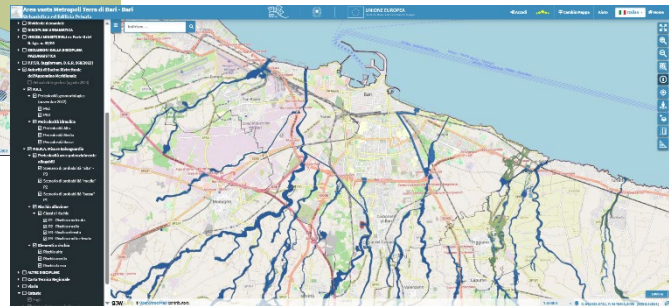


3.2.3 Environmental and territorial constraints

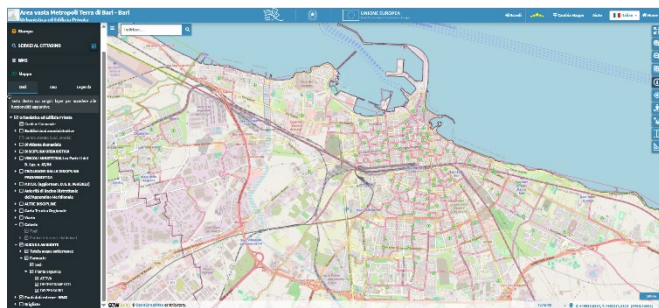
The GIS supports land protection by enabling the immediate identification of areas subject to environmental, landscape, and hydrogeological constraints.



Landscape constraints



Hydrogeological constraints



3.2.4 Public services and infrastructure

The spatial representation of public services and infrastructure facilitates urban planning and improved accessibility.

4. CONCLUSION

The digitization of public services through the SIT in Italy, in line with the priorities of the PNRR, does not represent a simple technological transition but a structural transformation: the Italian territory becomes a shared information asset, citizens access more transparent and faster services, and administrations acquire advanced tools to manage development processes. The SIT thus establishes itself as a key infrastructure for the modernization of the Public Administration, capable of combining efficiency, innovation, and sustainability.

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