Chapter 10
Digital Construction and Management the Public's Infrastructures

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Abstract The purpose of the present paper "Digital construction and management the public's infrastructures" is to propose an interconnected development approach, in the management of public infrastructure asset, that through of digital modeling (BIM*) and interoperability provides tools to support decision-making processes. In detail, this work analyzes the innovative process of developing digital tools for the institutional tasks of supervision and support for the management of land transport infrastructure in the Italian national system. Therefore, trough of one assumed a georeferenced network of "digital twins" have been valued the scenarios obtainable whit the digitalization of the public works and of the territory's surveys. The principles for managing information flows for Italian's public transport infrastructures have been developed in accordance with national legislation and the reference UNI standards. The assumed flow is on the exchange of data between the managing subjects with the owners' authorities and surveillance bodies, taking as pivot element the Index public work (IOP) code attributed to each public work. Finally, a conceptual model has been proposed for the energy analysis of the road section and the identification of the best areas to create the "green islands" to produce renewable energy, for the management of infrastructure and for the recharging of electric vehicles.

Keywords Digitalization · GIS · Infrastructure · Integrated · Energy · Building Information Modeling · Geographic Information Systems

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10.1 Introduction

It was carried out an analysis of the Italian network infrastructures aimed at their digitization. This work has also considered the regulatory framework establishing the mandatory adoption of digital tools (MIMS 2017) and the precise indications of the National Recovery and Resilience Plan (PNRR) (LAW 2021, Decree-Law 2021, MIMS). We proceeded to define the tools to make organic and interconnected the asset, through the detection of the major problems facing the infrastructural asset. Three important regulatory instruments recently adopted by Italy have been used to this end, namely:

- Guidelines on existing bridge verifications (MIMS 2020);
- Guidelines on monitoring existing tunnels (Decree-Law 2020);
- National Registry of Public Works (MIMS 2019).

The latter mentioned instrument in particular, through the attribution to each public work of an identification code, has made it possible to exchange information on the individual infrastructures, between the different subjects involved in the construction/management of the work and the institutional subjects called to supervise the infrastructural asset. This sharing of information, through the digitization of assets, presupposes the evaluation of the analysis tools to assess the state of health of the works, in relation to the possible risks related to the territory in which the works are located.

In order to define through the appropriate predictive algorithms, the priority and the method of the in-depth studies to be carried out through specific investigations on the works and interventions are to be performed. Finally, a system analysis was produced that manages infrastructures and traffic flows on a regional scale, assessing the resilience of the infrastructures themselves and their transition to energy autonomy.

The Italian territory has very complex orographic characteristics with a considerable presence of bridges and tunnels, both in the road and in the railway sector. The infrastructural building asset, which has developed from the end of the nineteenth century to the present, has recorded in the decades following the end of the Second World War the period of maximum growth of infrastructures, especially roads, through the use of construction technologies that exploited a lot of reinforced concrete (C.A.), also for the purpose of avoid the massive use of steel, since Italy is not a producer of this raw material. This implies that many works are at the end of the useful life period, and this together with the fact that the time calculation models did not include dynamic seismic actions in the mathematical modeling of structures is one of the major reasons why a systematic operation of census and cataloging of public works and in particular of road infrastructures is underway, motorways and railways. The need to catalog and classify the works, based on the territory and the functional characteristics, that is, the average daily traffic recorded, is one of the challenges that the Public Administration must face at the same time as the need for digitization of the same, through a *system of governance plan* capable of harmonizing the phases of the processes of:

- Innovation renewal;
- Planning;
- Design;
- Implementation of the interventions;
- Asset management and maintenance.

The evolution of the economic environment has led to a transformation of typology and traffic volume, which is often even ten times higher than the volume of traffic considered in the initial project. This evolution has not always been managed in an ordinary way through adequate industrial development plans, also due to the orographic difficulties mentioned above and the stratification of the territories that have seen Italian municipalities and cities develop over the centuries with criteria not suitable to provide an adequate response to the modern economy of industrial exchanges. Now is the time to reorganize the territory on the basis of shared criteria, highlighting the economic, environmental and social needs and evaluating through the tools of digitization the best solutions applicable to the different territories. The use of simulation is a tool that must move from research fields to application fields, in a widespread way, in order to feed the data from below, useful to support strategic decisions with an acceptable level of uncertainty.

To achieve what has been said above, a structure has been hypothesized that, starting from the inputs of the PNRR and the national legislation for the adoption and development of digital tools (MIMS 2017), identifies a holistic strategy for the management of the infrastructure asset, for land transport infrastructures (Fig. 10.1).

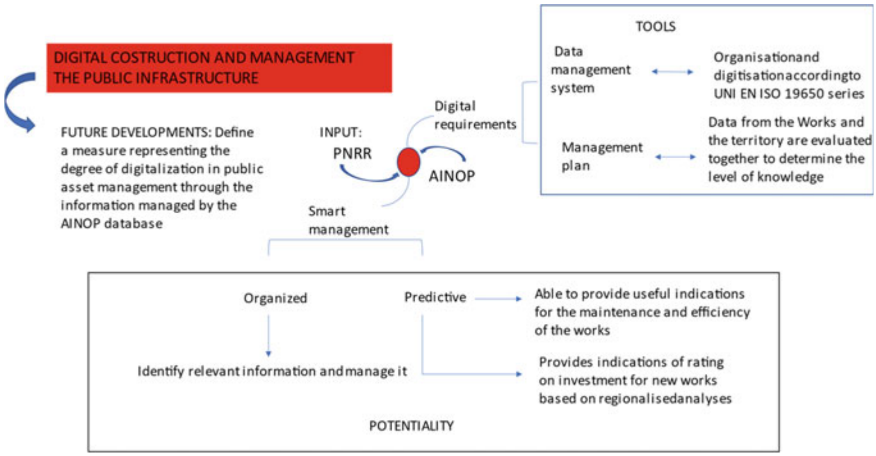

Fig. 10.1 Input–requirements–developments: elements and requirements for the digital management of public infrastructures

10.2 Digital Development: Strategy and Complexity

After the collapse of the Polcevera Viaduct in Genoa in the summer of 2018, in the Italian panorama, there has been an acceleration, which has led to the establishment of the Computer Archive of Public Works (AINOP) in the space of a year and the allocation in a single structure of the tasks of promoting and supervising the safety of Railways and Road and Motorway Infrastructures (ANSFISA) (Genoa Decree 2018). The spirit of innovation and the strong need to give uniformity to the management of Infrastructures, adapting management systems to common standards, have grown hand in hand with the country's needs to invest in Digitization and Environmental Sustainability.

In addition, with the PNRR (Decree-Law 2021), 62 billion euros have been allocated to **infrastructures for logistics and mobility**, highlighting the central role of the Ministry of Sustainable Infrastructure and Mobility (MIMS) in the implementation of decisive projects for the relaunch of the country, based on economic, social, and environmental sustainability.

The Ministry's projects are financed for **41 billion with the European resources** of the Next-Generation EU program (40.7 billion) and with those of react EU (313 million), which are added **national resources for almost 21 billion euros**, of which 10.6 billion are from the Complementary Fund and 10.3 billion are from the budget deviation. The national funds pursue the same objectives as the European ones, but in some cases, they finance projects related to a longer time horizon than the term of 2026 imposed by the PNRR, such as the completion of the Salerno-Reggio Calabria High Speed. About **56% of the resources (34.7 billion euros) are destined to interventions in the south of Italy the so-called "Mezzogiorno"**, a sign of the Government's desire to concretely launch policies to overcome the gaps between the different areas of the country (https://www.mit.gov.it/node/15710).

Some projects will be carried out in collaboration between the MIMS and other Ministries (Ecological Transition, Digital Transition, Culture, Justice, Department for the South and Territorial Cohesion). And, indeed, four of the six "missions" that make up the PNRR (listed below—see Table 10.1) provide interventions under the responsibility of the MIMS: digitalization, innovation, competitiveness, and culture (493 million euros); green revolution and ecological transition (15.8 billion); infrastructure for sustainable mobility (41.8 billion); inclusion and social cohesion (3.9 billion).

The strategic objectives of the plan are six:

1. Sustainable development;
2. Ecological and digital transition;
3. People's well-being and reduction of inequalities;
4. Infrastructure and competitiveness;
5. Growth and employment;
6. Reduction of territorial gaps.

The main interventions, with which it is estimated a reduction of 2.3 million tons/year of CO_2 emissions, are:

Table 10.1 PNRR interventions

Description of the intervention/investment		Amount (€)
Railways	Development of high-speed/high-capacity railway lines	25.00×10^6
	Strengthening regional networks and electrification	5.45×10^6
	Strengthening railway nodes in urban areas	3.00×10^6
	Redevelopment of 30 strategic stations from a transport and tourist point of view	7.00×10^5
	Local "*green*" transport and mass rapid transport	8.40×10^6
Digitization interventions	Local public transport to encourage the development of the *mobility as a service* model and the integrated use of the different modes	4.80×10^6
Ecological transition of logistics	*Smart mobility*, transport networks powered by renewable energy sources	1.40×10^6
Development of cycling mobility	Construction of urban and tourist cycle paths and to connect the provincial roads with the main transport routes	100×10^6
Road and motorway sector	Technological control of bridges, viaducts, and tunnels	4.50×10^5
	Securing the A24 and A25 motorways	1.00×10^6

- 700 km of railway between high-speed development and regional lines;
- 216 km for Rapid Mass Transport;
- 3200 electric and hydrogen buses for urban areas;
- 2000 methane buses for extra-urban transport;
- 1800 km of tourist and urban cycle paths;
- Grow up of the experimentation for non-electrified railways (in Val Camonica and southern Italy) of hydrogen technologies.

10.2.1 Complexity of the Italian Land Transport System

The Italian territory is a peninsula that extends into the Mediterranean Sea and includes two major islands, Sicily and Sardinia, which is connected to the rest of Europe by the Alpine chain, which is the natural border of the nation with neighboring European countries.

Apart from some flat areas and the larger Po Valley, the territory consists of a system of mountains and hills that go from north to south, drawing a territory difficult to connect. This has led to the construction of a large number of bridges and tunnels, both in the road and rail sectors.

Table 10.2 Types of managers

Type of manager	Managers N°	Tratte Km	Incidence %
Motorway dealers	27	8.006	0.95
ANAS road roads	1	27.259	3.25
Regions, provinces, and metropolitan cities	123	135.691	16.16
Communes	7.904	668.673	79.64

From the administrative and managerial point of view for the road and motorway sector, the Italian network is essentially divided into four types of operators (ANSFISA 2021) for a total of 840,000 km of infrastructure, for a total of 8055 operators; below is a table of the consistency of the network (see Table 10.2):

With reference to the road sector, the motorway managers and the national manager of ANAS are matured from a managerial and technological point of view for the promotion of a progressive digitalization of the works. The degree of engineering of the processes related to this type of infrastructure favors the *change management* aimed at the creation of an interconnected system of management of the public infrastructure asset, while considering, however, that these concessionaires manage less than 21% of the road network (see Table 10.3).

The railway sector has two types of main operators, the National Manager, namely RFI with 16,832 lines in operation, for a total of 15,882 km of network between fundamental and complementary lines, and n. 10 Isolated Railways, for 1130 km of network (https://www.ansfisa.gov.it/relazioni-annuali).

From a historical and technical point of view, railway lines have significant profiles compared to the road sector: the smaller extension, the reduced number of managers, and greater engineering due to the nature of rail transport. Also, with regard to the management and communication of data relating to transport, the panorama in

Table 10.3 List of isolated railway operators

Managing company	Railway lines	Region
OFFICE	Genoa–Casella	Liguria
FERROVIENORD	Brescia–Iseo–Edolo	Lombardy
GTT SpA	Turin–Ceres	Piedmont
SSIF SpA	Domodossola–Swiss border	Piedmont
SPA ATTACK	• Rome–Lido • Rome–Civitacastellana–Viterbo	Latium
Railways of Calabria srl	Entire network	Calabria
Circumetnea railway	Catania Borgo–Riposto–extra-urban section	Sicily
WALL srl	Entire network	Apulia–Basilicata
DOCTOR SPA	Entire network	Sardinia
EAV	• Circumvesuviana railway • Cumana and Circumflegrea railways	Campania

the railway sector is standardized and the communication protocol is regulated at European level through the ERA European Union Agency for Railways.

It is also necessary to consider 230 km of metro network divided into 14 lines, present in the cities of: Milan, Rome, Naples, Turin, Brescia, Catania, and Genoa, developed mainly in tunnels (about 180 km). The different lines are characterized by different Degrees of Automation (you go from lines with a GdA 1, with manual train operation to lines with GdA 4, or with an automatic train operation) (ANSFISA 2021). With regard to metropolitan areas, the degree of digitalization that can be achieved is significantly different from other network infrastructures, if only in view of the amount of data managed per unit area, even if the same organizational levels as the rest of the railway sector are proposed again (UNI 2019).

10.3 Model Proposal: Methods

The proposed model of digital management of information relating to the assets of public network infrastructures responds to "System" needs that are at a higher level than the management level typical of a generic Organization, which explains its digital management through the specific Organizational Informational Requirements (OIRs), defined by the UNI EN ISO 19650 standard. The management of "System" means the ability to combine in a single digital environment the important information relating to the infrastructures, with regard to road sections, railway lines, and information on the individual works that constitute it. In order to allow the Pubblica Amministrazione, which has the task of planning investments, management control and compliance with safety and environmental requirements, to have a single database, updated and comparable.

The definition of the IT requirements of the organization is focused on the assets of the specific order. The proposed federated model does not enter into the structure of the individual OIR and PIR, for which, if necessary, minimum contents will be defined to which the managers must adapt. The model instead provides the definition, at the regulatory level, of the requirements for AIR and EIR in order to generate uniform summable/overlapping AIM, in order to obtain a "National Asset Information Model NAIM" for ground transport infrastructures, which combines the data of BIM and GIS models, to be integrated by control sensors and satellite analysis.

$$\text{NAIM} = \sum_{1}^{n} \text{AIM} \tag{10.1}$$

NAIM = National Asset Information Model;
AIM = Asset Information Model;
n = number of infrastructure managers.

Table 10.4 Hypothesis information management UNI EN ISO 19650: definition of hypotheses for NAIM

Document	Hypothesis
Asset information requirements (AIRs)	Regulated at national level
Organizational information requirements (OIRs)	Only minimum content shared nationally
Project information requirements (PIRs)	Conform to OIR
Exchange information requirements (EIRs)	Conform to OIR and PIR
Project information model (PIM)	Conform to OIR, PIR, and EIR
Asset information model (AIM)	Conform to AIR
National asset information model (NAIM)	Conform to AIR

What is proposed in some respects is similar to the Roads' Cadastre established by legislative decree of 30 April 1992 n. 285 art. 13, paragraph 6, and made operational with ministerial decree n. 3484 of 01/06/2001, which in detail establishes the characteristics and requirements of the data to be entered on the platform, for the representation and continuous updating of the road asset by road managers. Tool this very important, but never fully implemented. In addition, there is no National federated model of the Road Cadastres of individual managers (Table 10.4).

As far as the railway sector is concerned, the *Register of INFrastructrure (*RINF) database referred to in Article 49 of the ERA Interoperability Directive (2016/797) is currently established and operational, in which the main characteristics of the European railway infrastructure, and therefore, of the Italian one are reported. However, this does not allow you to define a multi-level analysis scenario.

This integrated digital management model is based on a GIS representation, compliant with the EUROPEAN DIRECTIVE INSPIRE, in order to insert the works, bridges, tunnels, etc. in the specific environmental context, to analyze the specific risks due to the territory and allow through the appropriate calculation algorithms (to be developed) the analysis at the territorial level of the criticalities, in relation to the type of work and the characteristics of operation.

10.3.1 The Sources to be Included in the Basic GIS

The proposed cartography complies with the National Catalog for Spatial Data (RNDT) was established with Article 59 of the Digital Administration Code, Legislative Decree 82/2005 (CAD), and was identified as a database of national interest. On the basis of this regulatory framework, the RNDT is the national catalog of metadata for Pas' spatial data and the services and also constitutes as public register of such

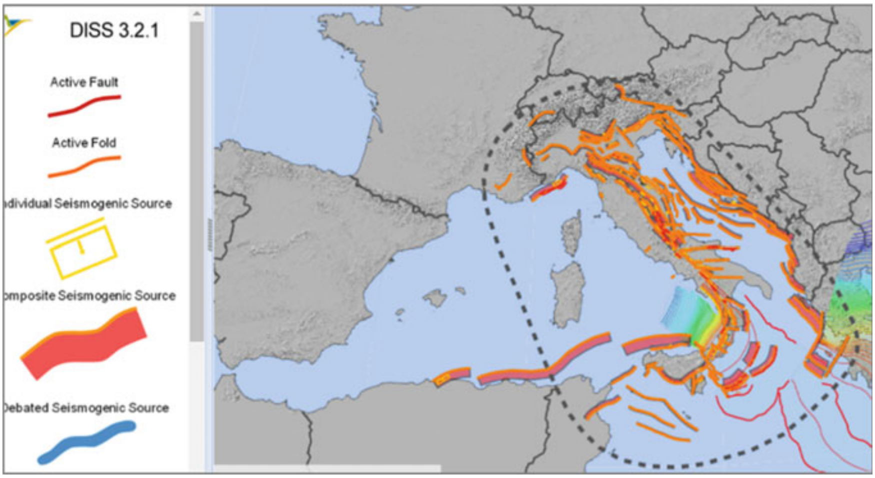

Fig. 10.2 DISS database: representation of seismic sources. *Source* DISS https://diss.ingv.it/ithdiss

data certifying its existence through the publication of the metadata. The RNDT is indeed an important component of the national infrastructure for spatial and environmental information established in Italy with the Legislative Decree no. 32/2010, the transposition of the INSPIRE Directive.

The main functionalities:

- metadata discovery, accessible to everyone;
- metadata management, restricted **for accredited public administrations**.

Below, the Maps are proposed in this paper:

Database of Individual Seismogenic Source (**DISS**), established by the National Institute of Geofisisica and Volcanology, is a repository geo where they are reported all information of nature seismotectonic (Fig. 10.2).

The term seismotectonics refers to the disciplinary sector that is interested in the relationships between geology, active tectonics and the seismicity of a given area, and which has as its main objective the identification of the structures that generate earthquakes—the seismogenic sources—and the estimation of their potential.

DTM: Digital Terrain Model o digital model of the soil represents the trend of the soil surface without the anthropic and vegetational elements (Fig. 10.3). Hydrological and river geomorphology analysis.

This tool can be used for the definition of risk maps (hydraulic, geomorphological, etc.) for the elaboration of maps of slope, curvature, and exposure of the slopes.

PAI: The hydrogeological plan is a fundamental instrument of the spatial planning policy outlined by Law 183/89. Given basin planning in each region, this instrument

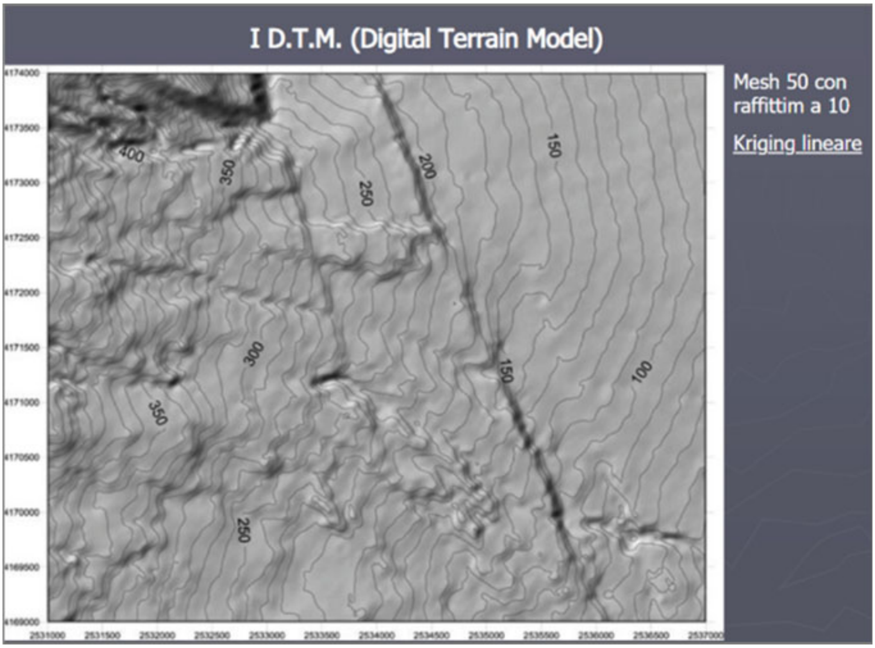

Fig. 10.3 DTM: digital terrain model. *Source* ISPRA (http://portalesgi.isprambiente.it/)

is the first thematic and functional excerpt. The Excerpt Plan for the Hydrogeological Structure, hereinafter referred to as the Excerpt Plan or Plan or P.A.I., drawn up pursuant to art. 17, paragraph 6 ter, of Law 183/89, art. 1, paragraph 1, of Legislative Decree 180/98, converted with amendments by Law 267/98, and art. 1 bis of Legislative Decree 279/2000, converted with amendments by Law 365/2000, has the value of a Territorial Sector Plan and is the cognitive, regulatory, and technical–operational tool through which the actions, interventions, and rules of use concerning the defense against the hydrogeological risk of the territory are planned and programmed (Fig. 10.4).

GEOLOGICAL MAP: Graphic representation in which are reported, with colors and symbols, the rocks emerging in a territory, their structural characteristics, thickness, location, age, stratigraphic relationships, mineral deposits and fossils; the data have been computerized with the ToolMap software (Fig. 10.5).

HYDROGEOLOGICAL MAP: The hydrogeological maps are represented the essential hydrogeological parameters of the territory, selected according to the objectives of the research. The hydrogeological parameters of particular interest are permeability, effective infiltration, transmissivity, etc.

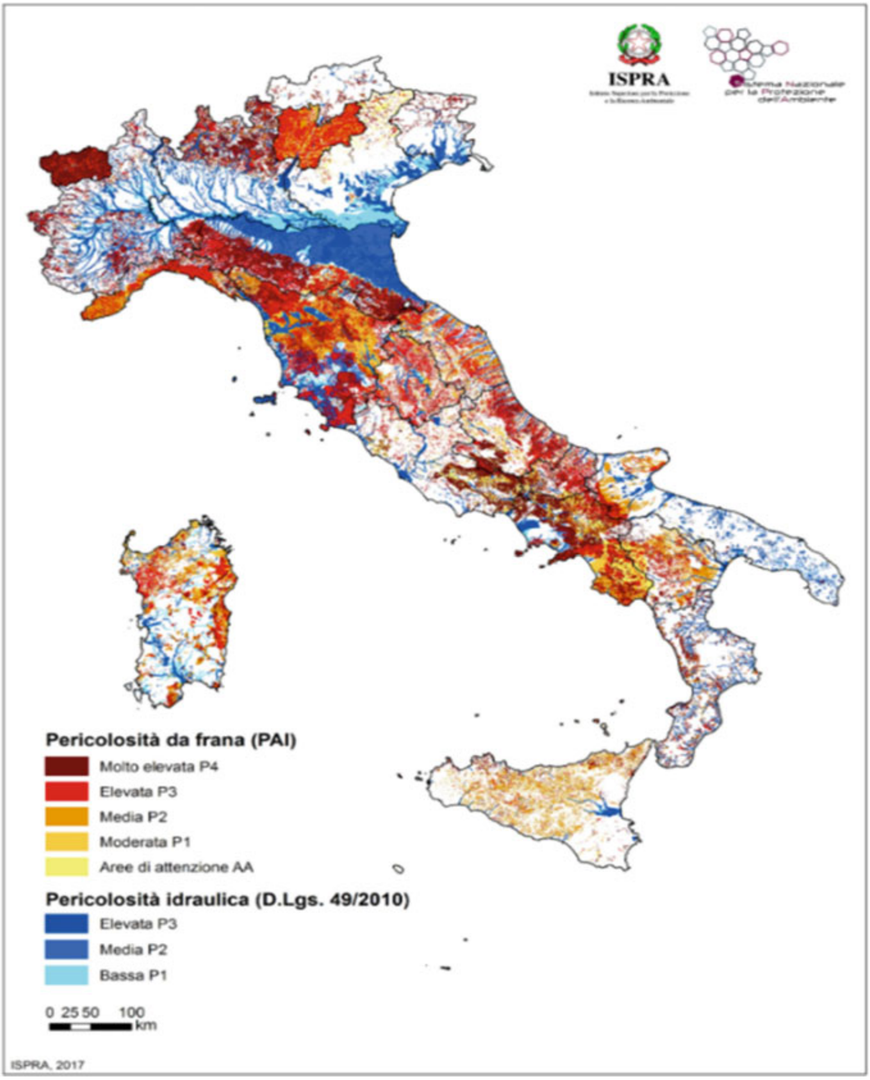

Fig. 10.4 PAI: hydrogeological plan. *Source* ISPRA (http://portalesgi.isprambiente.it/)

Hydrogeological maps can be divided essentially into two categories: synthesis maps and thematic maps. The former allows the reading of the territory in a hydrogeological key, providing in a synthetic way the main information on the hydrodynamic conditions existing within and at the limits of the individual hydrogeological domains. The latter supplement the previous ones with more detailed information on geological, hydrogeological, and hydrological aspects of particular interest (Fig. 10.6).

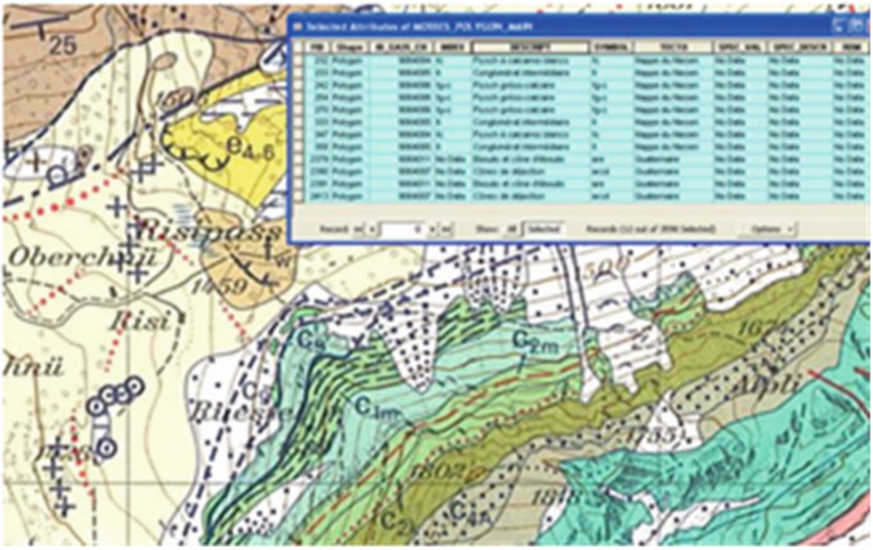

Fig. 10.5 Geological map: extract from the Geological Atlas of Switzerland 1:25,000 (AG25). *Source* ISPRA (http://portalesgi.isprambiente.it/)

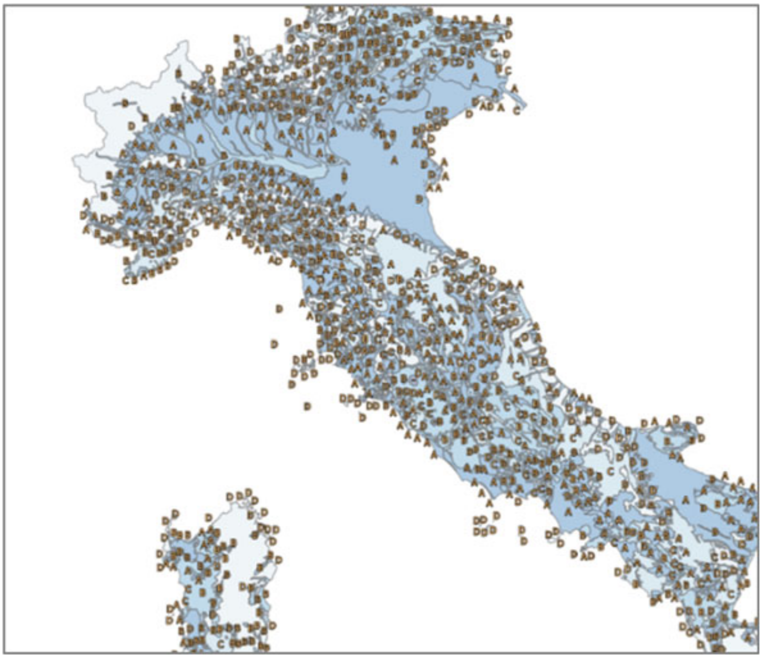

Fig. 10.6 Hydrogeological map: essential hydrogeological parameters. *Source* ISPRA (http://portalesgi.isprambiente.it/)

Fig. 10.7 Hydrogeological lattice: superficial alveoli. *Source* ISPRA (http://portalesgi.isprambiente.it/)

Of fundamental importance, are also all the maps that represent the "real interferences" with the works to be analyzed, namely:

HYDROGRAPHIC LATTICE: The hydrographic network is the set of riverbeds within which surface water flows (Fig. 10.7).

MAPS OF HOUSING DENSITY, SETTLEMENT TYPES, AND SPECIAL BUILDINGS: Population density is a measure of the number of people living in a given area (which may or may not include inland water surfaces). Normally, is measured in "inhabitants by square kilometer" (inhab./km^2). The value is obtained simply by dividing the number of inhabitants of a given territory by the surface of the territory itself (expressed in km^2) (Fig. 10.8).

10.3.2 Information Managed by the Model

The proposed model combines the possibilities of Digital Twins, for Linear Infrastructures (Dell'Acqua 2018, Vorotyntseva et al. 2021), making it possible for the bodies in charge to consult the information deriving from the recently adopted inspection sheets, provided by the guidelines for the assessment of the safety and state of maintenance of Bridges and Tunnels. These sheets, already designed for a computerized management of data, provide the determination of a class of attention of the

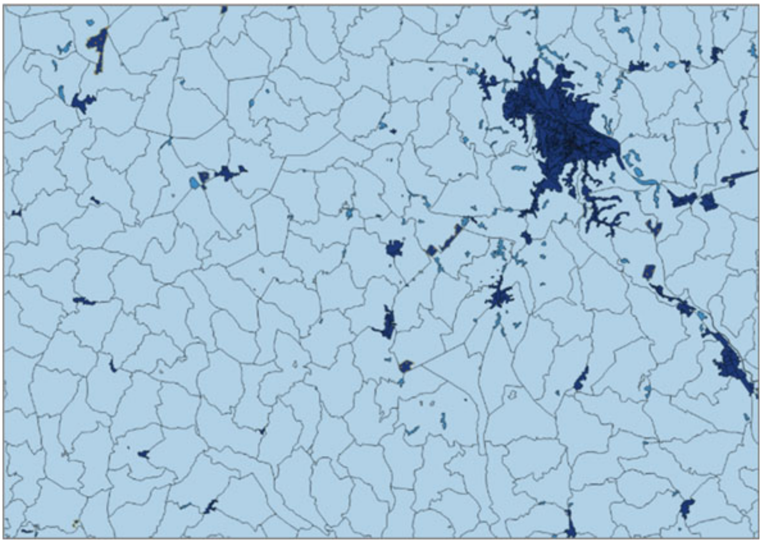

Fig. 10.8 Housing density map: socio-economic information. *Source* ISPRA (http://portalesgi.isprambiente.it/)

work, which determines the frequency of inspections, the instrumental and methodological checks in depth on the materials and in situ, the adaptation works if the work does not meet the requirements of design or operation.

The complex information framework, which involves a large number of operators and a plurality of public entities, called upon to carry out verification and control activities, as well as planning and development for the national transport network, is made possible thanks to the use of a single identification code assigned to the single work. The code in question is the IOP assigned by AINOP (Computerized Registry of Public Works, which already contains a part of the useful information, to be managed within the proposed model). Once the works have been uniquely identified and associated within a GIS, developed through arches and points, where the so-called "kilometers" of reference of the roads are defined through curvilinear abscissas, in which the infrastructures are located, hence the spatial and cartographic coordinates of reference, with respect to the rules defined at the regulatory level by the INSPIRE directive, so as to create the basic structure, are to be translated into an Integrated National System for the Management of Land Transport Infrastructures.

Within the georeferenced cartographic system, digital data computation logics will be introduced and managed, to be defined to support decision-making processes. This digital database has unique characteristics (Eastman et al. 2021), interoperability (Cosenza et al. 2021), data learning (Moretti et al. 2022), traceability (Cosenza et al. 2021, Mathew et al. 2022, Quqa et al. 2021), also integrating the assessments of economic, social, and environmental characteristics (Altıntaş and Ilal 2021, Xue et al. 2021, Mathew et al. 2022).

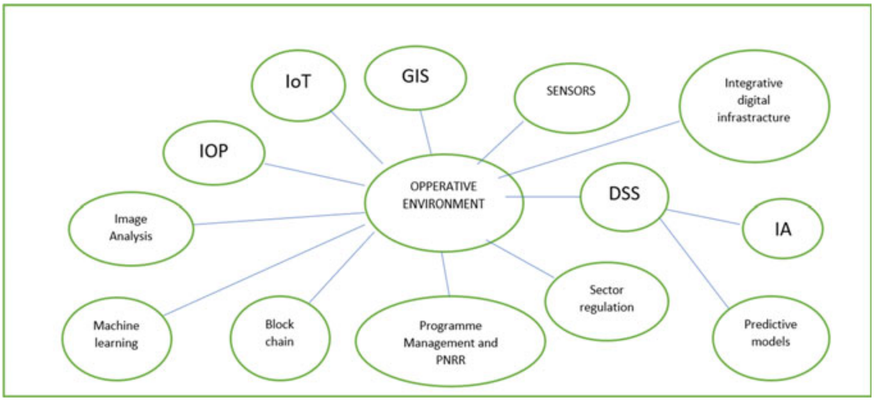

Fig. 10.9 Operating environment: elements included in the proposed model (internet of things—IoT, artificial intelligence—IA, decision support system)

The aim of the proposed model is also to create a context of predictive analysis of a probabilistic nature in order to mitigate the risk, understood as a risk deriving from any process that interacts with the life cycle of the infrastructure and the surrounding environment (Quqa et al. 2021) influenced by the operation of the infrastructure itself. In addition, the same model is a basic, certified, and updated tool, useful for managers, bodies, institutional organizations, and researchers to develop, through common creative licenses, adequate tools to support the processes of management of the works and, in general, infrastructure as well as evaluate the various phenomena at national, macro-regional, regional or district level, orienting and optimizing capital flows as well as the possibility of reaching artificial intelligence [29] and statistical approaches [28] aimed at defining design solutions that take into account multi-criteria optimization (Fig. 10.9).

Of course, by developing the hypotheses on the AIR, which currently constitute the formalized outcome of the OIR, a cascade of homogeneous and manageable information level of content is obtained through the EIR, under the hypotheses of wider interoperability formulated above. Connecting the references necessary to configure an *Asset Information Model* (AIM), from which to originate the *Digital Twin* (DT), thus connecting the BIM, IoT, and *predictive analytics* algorithms, to obtain (Eastman et al. 2021):

- Overall improvement of infrastructure efficiency;
- Analytical management of infrastructure data;
- Creation through the Digital Twin of a unified digital database;
- Ensure the relevance and machine-readable data format of the maintenance documents of the works;
- Approval and implementation of uniform formats and protocols for data exchange;
- Planning of investment and production programs using intelligent accident forecasting systems, traffic optimization, infrastructure resilience.

With a view to *Digitally Enabled Portfolio and Programme Management* and their implementation in the context of *Digitally Enabled Project Management*.

10.4 Conclusions

A possible digital management system of the Italian infrastructure asset regulated by the sector's regulatory discipline was presented, in compliance with the objectives of technological development, administrative management, optimization of environmental resources, and improvement of the transport system.

The digital management of infrastructures has been taken as a reference divided into two macrosystems. The first is the level of the works properly, in which the details relating to the realization of the works and the extraordinary maintenance works are defined, or in any case the maintenance work, to which the relative technical-accounting and authorization management documents are associated. This first level, largely structured within the aforementioned UNI ISO standards, has not been the subject of analysis although it constitutes an important institution to which a management system can be associated, normally internal to the contracting station, which sees to be involved the authorization bodies and the bodies responsible for anti-corruption and supervision of the works. On the other hand, it was considered to be a second level of the system, which aims to achieve the efficiency of the transport network itself and to control the profitability of investments. In particular, the six strategic objectives adopted with the PNRR were examined and a plan for the implementation of the schemes proposed with the application of UNI EN ISO 19650:2019 at the level of national management was hypothesized, to be implemented by means of the definition of common requirements identified for air, which requires uniformity for the bodies and companies that manage public infrastructures.

The strategic objectives underlying the PNRR have led the Italian government to plan substantial investments for the realization of public works in strict compliance with the timing imposed by the European Union for the use of EU funds. All these favor the creation of an integrated digital management system that, through the processing of certain data, guarantees the efficient management of public works by the actors involved, as in the proposed model. Generating a paradigm shift and a real digital *change management*, it is desirable, therefore, a new approach to the regulated sharing of data through a systematic and proliferating comparison between the various levels and actors involved both horizontally and vertically, in the management processes of public assets, even after engineering those not yet defined.

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Decree-Law of 28 September 2018 n. 109 "Genoa Decree"

LAW 29 December 2021, n. 233: Conversion into law, with amendments, of the decree-law 6 November 2021, n. 152, containing urgent provisions for the implementation of the National Recovery and Resilience Plan (PNRR) and for the prevention of mafia infiltrations

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MIMS—Decree of the ministry of infrastructure and sustainable mobility n. 578/2020 of 17.12.2020

MIMS—Superior council of public works: guidelines for the drafting of the technical and economic feasibility project to be based on the award of public works contracts of the PNRR and the PNC

MIMS—Decree of the ministry of infrastructure and sustainable mobility n. 430/2019

Source: from the MIMS website. https://www.mit.gov.it/node/15710

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