



# Factsheet:

## Access to Base Registries in Italy

Published 10/09/2018

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## Italy towards Interoperability

In Italy, the public administration can be characterised as substantially distributed throughout the state, which is, in turn, one of the main reasons for Italy to decisively advance along the path of interoperability. To tackle its interoperability challenges, the country has initiated several initiatives and actions to provide its citizens with increased and unified access to data and information located in over 8000 separate municipalities.

Thus, to develop its e-Government Strategy, Italy has introduced a number of e-Government policies dealing with base registries<sup>1</sup>. The most important implemented so far are:

- **the Public System of Digital Identity (SPID)**, a system that allows citizens and businesses to access the public administrations' and private members' online services with a single digital identity,
- **the Electronic Payments (pagoPA)**, which allows citizens and businesses to make payments to the government and managers of public utilities electronically.

Furthermore, to successfully reach their e-Government goals and achieve the desired level of interoperability among base registries, Italy is focusing its efforts towards creating:

- **a Login platform<sup>2</sup>** (Italia Login) planned to allow online access to all public administration services from a single point,
- **a National Catalogue of Public Services**, which is a catalogue of metadata describing public services, both online and physical, available through the public administrations. The goal is to create a platform that will allow citizens and enterprises to obtain information regarding all available public services.

Moreover, Italy has created a **central National Interoperability Framework (NIF)** intended to be used by all the Italian administrations. It transposes the majority of European Interoperability Framework's (EIF) principles, while at the same time introduces adaptations necessary for their own national interoperability systems. Such requirements created the need for new frameworks, the most relevant being:

- the legal framework **Digital Administration Code (DAC)<sup>3</sup>**, which defines a comprehensive set of rules regarding the digitisation of the public administrations, and
- the **Public Connectivity and Cooperation System (SPC)<sup>4</sup>**, which focuses on the technical interoperability and describes the actors, the governance, the interoperability infrastructures, and the security management.

The **Public Connectivity and Cooperation System (SPC)<sup>5</sup>** is a key factor in enabling interoperability due to its nationally shared infrastructures and the **Linked Open Data (LOD)<sup>6</sup> e-government services** that can be provided to the public administration through it. The infrastructure includes the data that allows users to identify public administrations, thus making it the best starting point for developing the Italian interoperability strategy. The SPC can be considered as the nucleus of a possible future Linked Open Data cloud of the Italian public administrations' data, to which it would link other data of the SPC shared infrastructures and authentic LOD. This Linked Open Data is managed and published by central and local public administrations. The advantages of this approach are that "it can contribute to the creation of the web of data of SPC, with **authentic and certified data of Italian public administrations**. Additionally, it can

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<sup>1</sup> <http://www.agid.gov.it/agenda-digitale-italiana/verso-italia-login>

<sup>2</sup> [http://www.agendadigitale.eu/egov/1187\\_italia-login-la-casa-del-cittadino-i-dettagli.htm](http://www.agendadigitale.eu/egov/1187_italia-login-la-casa-del-cittadino-i-dettagli.htm)

<sup>3</sup> [https://www.units.it/intra/gest\\_docum/files/Codice\\_pa\\_digitale.pdf](https://www.units.it/intra/gest_docum/files/Codice_pa_digitale.pdf)

<sup>4</sup> [http://www.agid.gov.it/sites/default/files/documentazione\\_trasparenza/semanticinteroperabilitylod\\_en\\_3.pdf](http://www.agid.gov.it/sites/default/files/documentazione_trasparenza/semanticinteroperabilitylod_en_3.pdf)

<sup>5</sup> <http://www.agid.gov.it/cad/sistema-pubblico-connettivita-spc>

<sup>6</sup> <http://www.linkedopendata.it/>

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facilitate the definition of a wide ontology constructed out of other specific domain ontologies, which are made available by public administrations”.<sup>7</sup>

The interoperability by design for base registries and the data sharing between them is ensured by the Public Connectivity System (SPC). According to the article 73 of the Digital Administration Code<sup>8</sup>, the SPC **“ensures the coordination of information and computer data between the central, regional and local, promotes uniformity in the processing and transmission of data, for the exchange and dissemination of information between public administrations and the implementation of integrated services”**.

The Triennial Plan<sup>9</sup> (Piano Triennale per l’informatica nella pubblica amministrazione 2017-2019), a strategic document involving the entire public administration which goes along with the digital transformation of the country. The plan, written by country’s Agency for the Digitalisation of the Public Sector (Agenzia per l’Italia Digitale, AGID) and approved in May 2017, defines:

- the strategic model of digital transformation of the public administration information
- a reference model for public sector ICT
- the investments in ICT of public sector according to European and Government guidelines

The plan outlines the technological vision of a public sector operating system; great efforts will be done in reviewing and create a catalogue of the ICT patrimony of the Italian Public Administration and in strengthening and improving existing digital platforms such as the Public System of Digital Identity (SPID), the digital identity (the CIE, Electronic Identity Card) electronic payments (pagoPA).

Among all challenges, the priority for Italy will be to bring together all the needs and peculiarities of the numerous institutions involved and the citizens. This work is critical in order to avoid any type of contrast and allow the regular implementation of the plan, and should be addressed before all others related matters.

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<sup>7</sup>[http://www.agid.gov.it/sites/default/files/documentazione\\_trasparenza/semanticinteroperabilitylod\\_en\\_3.pdf](http://www.agid.gov.it/sites/default/files/documentazione_trasparenza/semanticinteroperabilitylod_en_3.pdf)

<sup>8</sup> [https://www.units.it/intra/gest\\_docum/files/Codice\\_pa\\_digitale.pdf](https://www.units.it/intra/gest_docum/files/Codice_pa_digitale.pdf)

<sup>9</sup> [https://pianotriennale-ict.italia.it/assets/pdf/Piano\\_Triennale\\_per\\_l\\_informatica\\_nella\\_Pubblica\\_Amministrazione.pdf](https://pianotriennale-ict.italia.it/assets/pdf/Piano_Triennale_per_l_informatica_nella_Pubblica_Amministrazione.pdf)

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## Legal Interoperability

One of the main prerequisites for interoperability in any context is to create and implement legal regulations which will set the stage for all the changes to be made with regards to the organisational, semantic and technical levels of interoperability. Essentially, the laws about interoperability serve as the enablers for the various branches of public administration to work on effectively building interoperability among public administration bodies and benefitting from its maximum potential in times to come.

In terms of interoperability and data exchange, the most significant regulatory framework in Italy is the **Digital Administration Code, under the Decree-law 18 October 2012, n.179**, which defines a comprehensive set of rules regarding the digitisation of the public administrations, dealing with: **(a)** the rights of citizens and enterprises towards public administrations, **(b)** putting citizens and enterprises at the centre of public administration services, **(c)** digital signatures and legal validity, **(d)** contracts, payments and accounting deeds, **(e)** development, acquisition and reuse of software, and **(f)** the SPC, an interoperability framework of a nationally shared infrastructure for electronic payments in public administrations. The CAD has been recently reviewed (January 2018), the new law presents a number of changes and innovations, the main ones concerning the “digital domicile” (using certified emails) and the “digital citizenship” (based on digital identification and the creation of a dedicated web portal).

The Digital Administration Code also sets the provisions for two important base registries: National Registry of the Resident Population (ANPR) and the Land Registry, also known as the National Directory of Geographic Data (RNDR). The Decree-law 18 October 2012 n. 179, also sets the principles on semantic interoperability and open data, as well as how to position the technical guidelines to the European Interoperability Framework.<sup>10</sup>

In general terms, Italy has no legislation that explicitly defines what constitutes a base registry. The closest definition which could be considered belongs to the **Registry of Companies**. According to the article 2188 of the Civil Code, it is defined as a public registry of businesses, established to keep the records foreseen by the law. It is managed by the Office of the Registry of Companies under the supervision of a judge appointed by the court president. Additionally, according to the Decree of the Republic President of 7th December 1995, N. 581, art. 2, the Office of the Registry should, by computer techniques, prepare, hold, store and manage the Registry of Companies. Furthermore, the Office is charged with the preservation and exhibition of the documents and records subject to filing, registration or annotation in the commercial registry. Finally, it should also allow for the release of registration certificates or entries in the Registry of Companies to anyone who requests it.

Additionally, although not clearly defined, the Digital Administration Code (DAC), art. 60. 3 bis, provides a list of databases of national interest which are considered as **base registries**:

- **National repertoire of spatial data (RNDR);**
- **National Registry of the Resident Population;**
- **National database of public contracts** referred to in 'article 62-bis;
- **Criminal records;**
- **Registry of Companies;**
- **the automated files on immigration and asylum** provided for in article 2, paragraph 2 of the Decree of the President of the Republic July 27, 2004, n. 242;

**National Registry of Social Benefits Recipients (ANA).** Some examples of legal provisions for specific base registries are:

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<sup>10</sup>[http://www.agid.gov.it/sites/default/files/documentazione\\_trasparenza/semanticinteroperabilitylod\\_en\\_3.pdf](http://www.agid.gov.it/sites/default/files/documentazione_trasparenza/semanticinteroperabilitylod_en_3.pdf)

- The **National Registry of the Resident Population (ANPR)**<sup>11</sup>, which is set by the Digital Administration Code, Chapter V - Data of public administration and network services, art. 62<sup>12</sup>. It defines the National Registry of the Resident Population (ANPR) as a merge of the Index of National Registries (INA) and the Italian population residing abroad (AIRE). Regarding the use of personal data, the Digital Administration Code mandates that personal data should be stored locally and aligned continuously with the ANPR. The ANPR only allows for certification of personal data by municipalities if these are in compliance with the provisions of article 33 of the Decree of the President of the Republic May 30, 1989, n. 223<sup>13</sup>. Nonetheless, the municipalities may be allowed to use personal data using special agreements. Furthermore, the ANPR also grants other public administrations, and organisations access to its data for the purpose of providing services.
- The Land Registry or **the National Directory of Geographic Data (RNDT)** is also prescribed for in the article 59 of the Digital Administration Code (DAC)<sup>14</sup>. It gathers geographic data held by public authorities at national, regional and local level. Thus, Article 59 established the technical rules for the gathering of spatial data, to be implemented by public authorities. These rules apply to the establishment of spatial databases, documentation, usability and the exchange of data between the central and local public administrations by the provisions of the DAC.
- The **Registry of Companies**' legal grounds is provided by art. 2188 of the Civil Code<sup>15</sup>. The Registry has been fully operational from February 19, 1996, under art. 8 of Law 29 December 1993 n. 580<sup>16</sup> on the reorganisation of the Chambers of Commerce along with the DPR 581/95<sup>17</sup>, containing the special regulations for the implementation of the Registry's activities.

In Italy, the "Once-Only" principle has been transposed into legislation through the **Decree n. 82 of 7th March 2005, the Digital Administration Code (DAC) art. 50 and 58**<sup>18</sup>. Both articles state that the public administrations need to cooperate with each other to obtain the needed information, rather than acquiring it from citizens, who are not obliged to provide the same information to the public administration more than once. As a result, steps undertaken towards applying the OOP include the creation of common data models for some databases or base registries, such as the National Directory of Geographic Data (RNDT) and the National Registry of the Resident Population (ANPR). Nonetheless, Italy still has to invest efforts towards applying the principle in a broader scope, and in turn, ensure that public administrations exchange data between each other without requesting additional data from the citizens or enterprises.

Moreover, data held in base registries are opened up to generate value through reuse, to achieve efficiency by sharing and to foster participation and transparency among public administrations. In Italy, **article 9 of Decree-law number 179/2012**<sup>19</sup> enhances access to and reuse of Public Sector Information (PSI). It aims to do so by introducing, among others, a clear definition of "open data" and the general principle of openness by default. To further advance reusing the PSI, the Agency for Digital Italy (AgID)<sup>20</sup> has made its Linked

<sup>11</sup> <http://servizidemografici.interno.it/sites/default/files/Opuscolo%20ANPR%20%20-%20Edizione%202015.pdf>

<sup>12</sup> <http://www.agid.gov.it/cad/anagrafe-nazionale-popolazione-residente-anpr>

<sup>13</sup> [http://www.agid.gov.it/sites/default/files/leggi\\_decreti\\_direttive/nuovo\\_regolamento\\_anagrafico.pdf](http://www.agid.gov.it/sites/default/files/leggi_decreti_direttive/nuovo_regolamento_anagrafico.pdf)

<sup>14</sup> <http://www.agid.gov.it/cad/art-59-dati-territoriali>

<sup>15</sup> [http://www.dirittoprivatoinrete.it/impresa/articolo\\_2188\\_e\\_ss.htm](http://www.dirittoprivatoinrete.it/impresa/articolo_2188_e_ss.htm)

<sup>16</sup> [http://www.ce.camcom.it/files/normativa/L580\\_93.pdf](http://www.ce.camcom.it/files/normativa/L580_93.pdf)

<sup>17</sup> [http://www.camcomtaranto.gov.it/Doc\\_Pdf/RI/decreto95581.PDF](http://www.camcomtaranto.gov.it/Doc_Pdf/RI/decreto95581.PDF)

<sup>18</sup> [http://www.agid.gov.it/sites/default/files/leggi\\_decreti\\_direttive/dl-7-marzo-2005-82\\_0.pdf](http://www.agid.gov.it/sites/default/files/leggi_decreti_direttive/dl-7-marzo-2005-82_0.pdf) or

<http://www.agid.gov.it/cad/sezione-i-dati-pubbliche-amministrazioni>

<sup>19</sup> [http://www.gazzettaufficiale.it/atto/serie\\_generale/caricaDettaglioAtto/originario?atto.dataPubblicazioneGazzetta=2012-12-18&atto.codiceRedazionale=12A13277](http://www.gazzettaufficiale.it/atto/serie_generale/caricaDettaglioAtto/originario?atto.dataPubblicazioneGazzetta=2012-12-18&atto.codiceRedazionale=12A13277)

<sup>20</sup> <http://www.agid.gov.it>

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Open Data infrastructure (i.e., SPC Data) available to all of the public administrations willing to release their data, while upholding a high level of open data quality standards.

Additionally, AgID, who is also responsible for the National Open Data portal, has created an application profile for the National Open Data portal<sup>21</sup> based on two data models: the European one, **DCAT-AP**, and the Core Public Service Vocabulary Application Profile (**CPSV-AP**). The application profile was based on the two mentioned data models in order to enable the connection between data itself, as well as the services that use it. Furthermore, the Italian National Open Data portal, **dati.gov.it**, provides a catalogue of metadata that describes open data created and held by the public authorities. The individual authorities, or in this case the data generators, can upload and update their own datasets. However, this catalogue does not report the data from the individual datasets, but rather provides with a list of databases along with some context information. The latest version of the portal has been launched in 2017: in the coming years, the Agency plans to transform the current data portal into one that will gather data from all the public administrations. Additionally, it intends to include another catalogue on the portal, the National Catalogue of Databases of Public Administrations, developed by AgID last year. Once again it is a catalogue of metadata that describes databases of public administrations.

Moreover, AgID annually publishes 3 key documents on PSI: an Agenda including the national policies and strategies, a set of Guidelines to support public administrations in the implementation of the strategies included in the Agenda and a Report assessing the status of the development of PSI in Italy with respect to the strategies defined in the Agenda. Therefore, as a result of its extensive activities, the Agency for Digital Italy (AgID) has been identified as the Italian PSI enabler.

To further enrich the amount of Open Data available, Italy is undertaking several national Open Data actions. One of the actions involves connecting the National Open Data portal with the National Directory of Geographic Data (RNDT). Also, the Italian Department of Public Administration is involved in several international initiatives related to open data and open government (e.g., the Open Government Partnership<sup>22</sup>).

Finally, one of the most important legal constraints is the **Personal Data Protection Code**<sup>23</sup> (Code), which has transposed Directive 95/46/EC on data protection (Data Protection Directive) into the Italian legal system. The Italian Data Protection Authority (IDPA) is the authority responsible for inflicting sanctions and reparations for non-compliance with data protection laws. Under Sections 161 through 166 of the Italian Data Protection Code, breaches of data protection can lead to administrative monetary penalties of up to EUR 2,448,000.<sup>24</sup>

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<sup>21</sup> <http://www.dati.gov.it/>

<sup>22</sup> <https://www.opengovpartnership.org/countries/italy>

<sup>23</sup> <http://www.normattiva.it/atto/caricaDettaglioAtto?atto.dataPubblicazioneGazzetta=2012-05-31&atto.codiceRedazionale=012G0090>

<sup>24</sup> <http://www.privacy.it/privacycode-en.html>

## Organisational Interoperability

Italy is composed of 20 regions, 107 provinces and 7958 municipalities. In the past, it was either the individual municipalities which managed their base registries or specific agencies. An example of such a registry is the Vehicle Registry which is still managed at the municipal level. Nonetheless, the tendency nowadays is towards the centralisation of the base registries. Therefore, many will be included under the management of a central ministry or entity. The National Registry of the Resident Population (ANPR), previously managed and distributed within each municipality, is currently in the process of being centralised. The municipalities are, therefore, moving their databases to the central one. All the databases of national interest mentioned in the Digital Administration Code (DAC), art.60. 3 bis, are centralised base registries. Accordingly, the Company Registry, the National Registry of the Resident Population (ANPR), the Land Registry, Public Contracts and Criminal records database are all centralised at the national level.

There is no catalogue of all base registries available in Italy. However, the following table gathers the main ones in Italy, the public administration bodies to which they belong and the master data type/s they handle:

BASE REGISTRIES	MINISTRIES/AUTHORITIES OF ITALY	MASTER DATA
Tax data archive (not officially a registry)	Ministry of Economy and Finances, l'Agenzia delle entrate	Tax
National Registry of the Resident Population (ANPR)	Ministry of Interior	Personal Data (Natural and Legal Persons): birth, death, marriage, address, IDs, passports.
Vehicle Registry (not officially a registry)	Ministry of Infrastructure and Transport	Vehicles
Company Registry	Chamber of Commerce, InfoCamere	Business
Catalogue of geospatial data (Repertorio Nazionale dei dati territoriali - RNDT)	Territory Agency	Land parcels, buildings
Criminal database	Ministry of Justice	Criminal records
National Database of Public Contracts	National Anti-corruption Authority (ANAC)	Contracts
Catalogue of national addresses and civil numbers	National <u>institute</u> of statistics	Addresses and civil numbers

The **Vehicle Registry** and the **Tax Registry** are a set of databases not listed officially in the law as base registries. They could be good candidates for future base registries.

**The Company Registry**<sup>25</sup> can be defined as **the Registry of company details**: it contains information (incorporation, amendments, cessation of trading) for all companies with any legal status and within any sector of economic activity, with headquarters or local branches within the country, as well as any other subject that is required by law. *InfoCamere* is the consortium company for the Italian Chambers of Commerce, which created and managed [registroimprese.it](http://www.registroimprese.it). The Company Registry is also interacting with other databases in a cross-border manner.

**The National Registry of the Resident Population**<sup>26</sup> (Anagrafe Unica Nazionale), as mentioned before, is in the process of becoming a centralised database that substitutes the municipal databases: the Index of National Registries (INA) and the Italian population residing abroad (AIRE).

<sup>25</sup> <http://www.registroimprese.it>

<sup>26</sup> <http://www.agid.gov.it/agenda-digitale/pubblica-amministrazione/anagrafe-nazionale-anpr>

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The reason behind the centralisation of the ANPR is the fact that each municipality has created its database, and in doing so, they replicated the data. It is thus clear that the “Once-Only” principle was not implemented at that point. To resolve this issue, the Ministry of Economy and Finance, through SOGEI<sup>27</sup>, built a system where all the data is centralised. Different municipalities can access the central database directly. Nevertheless, they still maintain their local databases. Municipalities persist in doing so, because moving the data to the centralised system in its entirety is complicated, as they have developed their individual applications over the years.

Currently, the central database is being updated through a synchronisation software. The process involves integrating the current local/municipal databases into the centralised one. Through this process, outdated municipal databases are also being updated. The reading and writing of the information is done through the central database, which is then transposed to the municipal database.

The **Land Registry** or **RNDT**<sup>28</sup> (Repertorio Nazionale dei Dati Territoriali) is the national catalogue of metadata on spatial datasets and related services available to the public administrations. The catalogue is also a public registry of spatial data, thus certifying their existence through the publication of the related metadata.<sup>29</sup>

Although each ministry governs its own base registries, it is important to note that the Agency for Digital Italy, which is responsible for ensuring the attainment of the Italian Digital Agenda objectives in line with the European Digital Agenda, is responsible for:

- the IT coordination of the central administration, including regional and local levels;
- the issue of technical rules, guidelines and planning methodologies in the field of information technologies;
- the uniformity of public information systems, using the necessary technical coordination, intended to deliver services to citizens and businesses. It ensures consistent levels of quality and usability across the country, as well as the full integration at European level;
- the implementation of the Italian and European Digital Agenda, etc.

Additionally, several agreements are in place to ensure appropriate data sharing in Italy. For example, there is a data sharing agreement which regulates the interactions with the Land Registry (RNDT) based on the SPCoop system and schema.<sup>30</sup> Moreover, the interoperability agreements, technical requirements and Service Level Agreements, in particular, are implemented in cooperation with the Agency for Digital Italy (AgID).

To maintain the various agreements in force, the Interoperability, Cooperation and Access services (SICA) has been created. SICA is the set of rules, services and shared infrastructure that enable the operational interoperability between the IT systems of the public administrations. Furthermore, it provides access to application services developed, which are made available through the Public Connectivity System (SPC). SICA is centralised and independent from the individual administrations, and its task is to maintain a series of registries which are queried by the domain ports for processing the application messages. For the time being, SICA publishes service level agreements. However, it will discontinue this service in the future, as SLAs are in the process of gradually being phased out. Accordingly, art. 58 of the DAC, deals specifically with SLAs. However it will soon be completely revised or even replaced with a new version<sup>31</sup>.

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<sup>27</sup> <http://www.sogei.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/913>

<sup>28</sup> <http://www.rndt.gov.it>

<sup>29</sup> <http://www.rndt.gov.it>

<sup>30</sup> <http://inspire.ec.europa.eu/reports/stateofplay2010/rcr09ITv111.pdf>

<sup>31</sup> <http://www.progettoicar.it/ViewCategory.aspx?catid=9c0bffb5731f4ece95ad81efee839b28>

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## Semantic Interoperability

When opening up data in base registries to other administrations, citizens and businesses, the data needs to be accessible, of quality, coherent and understandable. This could be set in the form of information management policies, principles, rules or models.

The Agency for Digital Italy (AgID) provides the Guidelines for Semantic Interoperability through Linked Open Data<sup>32</sup>. These guidelines can be viewed as technical support for public administrations: they offer a methodological approach to semantic interoperability through the Linked Open Data model that comes with the reuse of shared common ontologies. They also provide an analysis of the set of standards and tools to be utilised to enable the proposed approach. The guidelines include several recommendations, highlighted in the document, with the aim to draw the attention of the readers to concrete actions to be undertaken.

AgID also created a series of guidelines for registries regarding the quality of data they should provide considering the ISO 25012 standards: the data must be complete, authentic, up to date, etc. These guidelines were produced to implement the Decree-law 18 October 2012 n. 179, mentioned before.

The guidelines provide a detailed methodological approach for making base registries interoperable, based on seven steps:

1. Identifying and selecting the datasets;
2. Cleaning-up the datasets;
3. Analysing and modelling the datasets;
4. Enriching the datasets;
5. Interlinking the datasets;
6. Validation;
7. Publication.

At the moment, AgID is not monitoring to what extent these guidelines are applied by base registries, as it is out of their scope and there is no official requirement to do so. Nevertheless, the agency is trying to develop a methodology to monitor data quality, defining indicators based on specific standards.

The Interoperability, Cooperation and Access services (SICA) also provide a Catalogue of Ontologies and data schemes. The services offer functions that allow for the management of semantics related to application services, information and data processed via SPCoop. In doing so, SICA provides storing tools, integration and query ontologies. These services should assist the user in the creation, validation, maintenance and query of an ontology. The concepts and the relationships represented in the ontologies, which are managed by the service, must apply to the description of the managed service agreements from SICA Registry Service General and vice versa.

As part of the Triennial Plan, Italy started using GitHub (a web-based hosting service for version control using git) as a central repository of ontologies and vocabulary<sup>33</sup>. The ontologies which have been created are all linked with each other and create a network called OntoPiA (an OntoNet system); the repository is divided into 2 main directories:

- Ontologies: contain OWL (Web Ontology Language) Ontologies with labels in both Italian and English and with integrated diagrams to better visualize the network functioning.

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<sup>32</sup>[http://www.agid.gov.it/sites/default/files/documentazione\\_trasparenza/semanticinteroperabilitylod\\_en\\_3.pdf](http://www.agid.gov.it/sites/default/files/documentazione_trasparenza/semanticinteroperabilitylod_en_3.pdf) and [http://archivio.digitpa.gov.it/sites/default/files//allegati\\_tec/CdC-SPC-GdL6-InteroperabilitaSemOpenData\\_v2.0\\_0.pdf](http://archivio.digitpa.gov.it/sites/default/files//allegati_tec/CdC-SPC-GdL6-InteroperabilitaSemOpenData_v2.0_0.pdf)

<sup>33</sup> <https://github.com/italia/daf-ontologie-vocabolari-controllati>

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Controlled Vocabularies: contain a first list of controlled vocabularies developed in support of the ontologies. The national repertoire of spatial data (RNDT) is based on the ISO Standard 19115, 19119 and TS 19139, produced by the Technical Committee ISO / TC211, which deals with standards for geographic information. Compliance with technical rules of RNDT while adhering to the relevant ISO standards, ensures the simultaneous compliance, without further formalities, with Regulation (EC) No. 1205/2008 implementing the INSPIRE Directive for metadata. It defines code lists, taxonomies and metadata to be used.

The Agency for Digital Italy has, therefore, created the RNDT portal - entirely with open source technology - which provides the two typical features of a service catalogue:

- the consultation of metadata<sup>34</sup>, accessible to all;
- the metadata management<sup>35</sup>, reserved for accredited public administrations.

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<sup>34</sup>[http://www.rndt.gov.it/RNDT/home/index.php?option=com\\_content&view=article&id=25:catalogo&catid=13:sito&Itemid=217](http://www.rndt.gov.it/RNDT/home/index.php?option=com_content&view=article&id=25:catalogo&catid=13:sito&Itemid=217)

<sup>35</sup>[http://www.rndt.gov.it/RNDT/home/index.php?option=com\\_content&view=article&id=26:gestione-metadati&catid=13:sito&Itemid=218](http://www.rndt.gov.it/RNDT/home/index.php?option=com_content&view=article&id=26:gestione-metadati&catid=13:sito&Itemid=218)

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## Technical Interoperability

Technical interoperability implies the ability of two or more information and communication technology applications to accept data from each other and successfully perform a task without the additional intervention of an operator. Consequently, secure technical systems and infrastructures, along with common sets of standards, are key levers for technical interoperability between base registries. These should enable easy access to data stored within the various base registries. They should also facilitate the data exchange through technical infrastructure channels, which in Italy is the Public Connectivity and Cooperation System (SPC).

### *The Public Connectivity and Cooperation System (SPC)*

The **Public Connectivity and Cooperation System (SPC)**, managed by the Agency for Digital Italy (AgID), is composed of a set of technological infrastructure and technical regulations used for the development, sharing, integration and dissemination of information assets and public administration data needed to **ensure basic interoperability** and cooperative application of IT systems and information flows. It ensures the security and confidentiality of information, as well as the maintenance and autonomy of the information assets of each public administration.<sup>36</sup> Additionally, the SPC Board (i.e., the governance body of SPC) defines technical guidelines on semantic interoperability that can drive public administrations and enterprises towards the production of interoperable Open Data.

The SPC is used for the exchange of information between base registries, different methods being applied depending on the involved base registries.

This being said, according to the Digital Administration Code, art. 3, the arrangements to access the data and services made available by the National Registry of the Resident Population (ANPR), are governed by specific agreements. By the article 58, paragraph 2, of the Legislative Decree No. 82 of March 7, 2005<sup>37</sup>, these are made accessible to all authorised bodies. Chapter VIII of the same Decree, covering the Public System of Connectivity, addresses the technical rules that set the interoperability criteria between the ANPR and other databases of national and regional importance. By using this technical rules, the registered information already made available by citizens can be acquired by public authorities without any further formalities, avoiding, therefore, the duplication of data.

The Land Registry (RNDT) uses both the Public Connectivity and Cooperation System (SPC) and other specific standards, such as the search service (CSW). Such combined usage allows the Registry to address data from the public administrations, thus demonstrating a more peer-to-peer approach. The Land Registry (RNDT) is required to use the SPC. Therefore, any interaction with the Registry should be done via the system. The National Database of Public Contracts, which is considered a registry, together with the Company Registry, have the option of using the SPC system, although it is not mandatory. Other options of interaction with base registries are via web applications that interface with these base registries. However, the machine-to-machine approach is done via the SPC system.

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<sup>36</sup> <http://www.agid.gov.it/cad/sistema-pubblico-connettivita-spc>

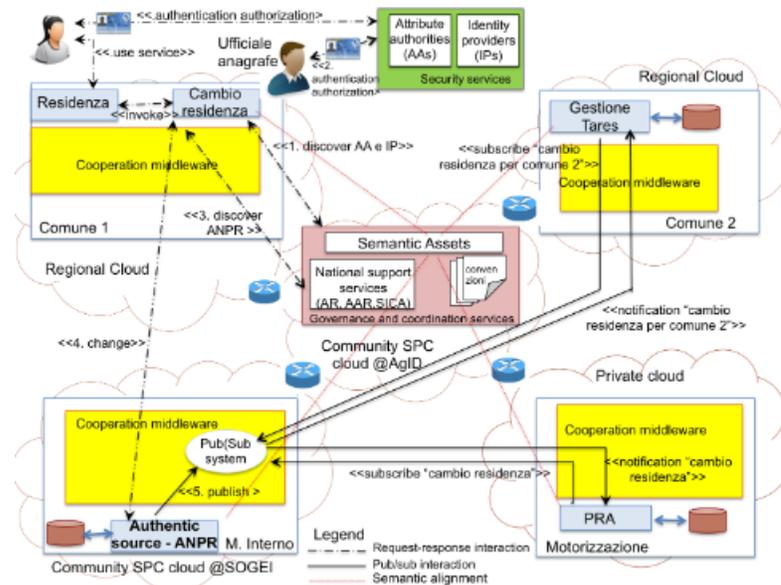
<sup>37</sup> [http://www.agid.gov.it/sites/default/files/leggi\\_decreti\\_direttive/dl-7-marzo-2005-82\\_0.pdf](http://www.agid.gov.it/sites/default/files/leggi_decreti_direttive/dl-7-marzo-2005-82_0.pdf)

According to the “Common Architecture for the Digital Agenda”<sup>38</sup> document (Un’architettura unitaria per l’agenda digitale - Il nuovo modello di cooperazione SPC), the SPC model is structured on the "stack" of the cloud computing paradigm (i.e., infrastructure - IaaS; platform layer - PaaS and SaaS application-level) where the emphasis, even for infrastructure levels, is placed on the service.

The hardware and software infrastructure is "multi-tenant" (i.e. in multi-property) and shared among multiple users; resources are pooled to ensure managed savings and high scalability even with a higher number of accesses to the services on the net. They are then assigned and reassigned according to the demand.

Each level has a set of interfaces, which are open, standards-based, so as to enable multichannel access, unified and reliable services at all levels, as well as a sharp reuse and interoperability. The model and the interfaces of each level are defined through specific technical requirements and guidelines issued by the Agency for Digital Italy (AgID), while being overseen by the architecture governance bodies.

For a better visualisation of the SPC system, a specific case will be used as an example, concretely the National Registry of the Resident Population (ANPR). It is part of a business domain which implements the national IT architecture using templates, guidelines and services, so as to ensure a documented and interoperable model with other domains as well, such as the electronic health dossier.



The figure above shows how the SPC architecture components can be used to implement the ANPR. For simplicity, the figure shows only a limited subset of operations that the database of national interest must support. The example illustrates the case of a citizen who wants to change the residency online from the municipality 2 to the municipality 1.

The citizen authentication is handled according to the Federated Management of Digital Identity (GFID) model used in the SPC, which provides validation of credentials with an Identity Provider. The citizen proves authentication through the Unified Digital Document and logs in the front-end

<sup>38</sup> [http://archivio.digitpa.gov.it/sites/default/files/Architettura\\_IT\\_PA.pdf](http://archivio.digitpa.gov.it/sites/default/files/Architettura_IT_PA.pdf)  
[http://www.agid.gov.it/sites/default/files/documenti\\_indirizzo/architettura\\_it\\_pa.pdf](http://www.agid.gov.it/sites/default/files/documenti_indirizzo/architettura_it_pa.pdf)

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web service to insert his/her data and change residence. The process is run by an officer of the Registry office, who also needs to authenticate to the system.

The back office service of the municipality 1 defines the process of interaction with the ANPR for the communication of the new data. Based on this process, described in the Process Management of Cooperation middleware, a call is made for a "change of residence data" provided by the ANPR and identified with the help of the national registries (i.e., log SICA). This call can be synchronised and managed through technical and semantic cooperation. In particular, it makes use of semantic assets, to describe the data involved in the interaction.

The ANPR service is based on data and notification through a publish/subscribe system deployed by the Interior Ministry, where a change of residence from municipality 2 to the municipality 1 occurred. The municipality 2, as well as other actors who may be involved in the process, shall be notified and act on their local applications to update data in real time.

About the deployment of resources, the figure shows a hybrid cloud model where several SPC community clouds (including regional clouds that can be created to host the services of the municipalities located in the region) interact with private clouds of some public administrations.

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## Cross-border Interoperability

The European Single Market drives the needs for more cross-border exchange of data. Next, to initiatives at European level, Member States sometimes enter in close cross-border cooperation as well. Italy is a member of EUCARIS<sup>39</sup>, ECRIS<sup>40</sup> and is pending membership for EULIS<sup>41</sup>. Furthermore, Italy also participates in ECRN - CORDIS<sup>42</sup> (digital transmission of the European civic records).

The activities involved in such cross-border interoperability can be exemplified through the processes carried out within EUCARIS. Here, Italy is providing vehicle and driving licence information based on the EUCARIS Treaty. Also, the country is making use of the EUCARIS technology to exchange information to comply with:

- the Road Safety Directive (2015/413/EU)
- the interoperable EU-wide e-Call based on Delegated Regulation (EU) No 305/2013)
- legislation concerning the European Registry of Road Transport Undertakings (ERRU), the regulations (EU) No 1071/2009, 1072/2009, 1073/2009 and 1213/2010.

Italy and more specifically AgID, participated to numerous project and studies related to European programs and initiatives, such as:

- Cloud for Europe (ended in June 2017), adoption a well-defined European Cloud Computing Strategy for the public sector.
- E-Sens (ended in March 2017), aiming at facilitating the deployment of cross-border digital public services through generic and re-usable technical components.
- Eksistenz (ended in May 2017), creation a set of innovative and interoperable tools, procedures, methods and processes that tackle identity theft in the EU

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<sup>39</sup> EUCARIS (European Car and Driving License Information System)

<https://www.eucaris.net/countries/italy>

<sup>40</sup> ECRIS (European Criminal Records Information System) [http://ec.europa.eu/justice/criminal/european-e-justice/ecris/index\\_en.htm](http://ec.europa.eu/justice/criminal/european-e-justice/ecris/index_en.htm)

<sup>41</sup> EULIS (European Land Information Service) <http://eulis.eu/>

<sup>42</sup> ECRN (European Civil Registry Network) [http://cordis.europa.eu/project/rcn/191701\\_en.html](http://cordis.europa.eu/project/rcn/191701_en.html)

## E-Government Public Services making use of Base Registries data

Unlike the majority of European countries, Italy does not yet have one portal serving as a Single Point of Contact to access the public administrations' services. Instead, Italy is providing several public e-services through separate portals, among which the most developed is the one for businesses.

The e-Government portal for **businesses**<sup>43</sup> provides a single entry point to information and online services. Users can gain access to all information and services provided online by the central government, regions, provinces, and municipalities exceeding 25000 inhabitants. They can also access a number of services provided by other entities including upland authorities, local health authorities and Chambers of Commerce. Access to online forms and services is enabled for 3 thematic areas: companies and public administration, company development, innovation and training.

The screenshot displays the homepage of the PSC-Italy portal. At the top, there is a navigation bar with the logo 'impresainungiorno.gov.it' and the tagline 'helping businesses grow'. Below this, a secondary navigation bar contains links for 'HOME', 'ACCESSO AI SUAP', 'AREE TEMATICHE', 'AREA INFORMATIVA', 'RISORSE E SERVIZI', 'PSC-Italy', and 'HELP DESK'. A search bar is located on the right side of this bar. The main content area features several sections: a welcome message, a 'Doing Business in Italy' section, a 'PSC-Italy' section, an 'EUGO' section, a '16 June 2015 The Italian Business Register speaks English' section, a 'First Contact' section, and a 'Report on the Italian Economy' section.

Furthermore, Italy has planned to create a portal that will deliver public services for the **National Registry of the Resident Population (ANPR)**. The services to be made available through ANPR include the electronic **transmission of certificates, birth declarations and certificates** referred to in the article 74 of the decree of the President of the Republic November 3, 2000, n. 396<sup>44</sup>.

Regarding the costs to be charged for the services provided, in the case of the Company Registry, according to the Decree n. 581 of 7th December 1995, art. 2.d<sup>45</sup>. The price of the copies cannot exceed the administrative cost. The access to the metadata in the RNDT, excluding those related to new acquisitions, is **public and free**, as required by art. 9 of the Ministerial Decree of 10 November 2011.

Italy usually provides multi-modal access to its base registries services accessible via SPID: desktop and mobile devices (IOS, Android and Windows) and tablets.

<sup>43</sup> <http://www.impresainungiorno.gov.it/psc-italy-was>

<sup>44</sup> [http://www.esteri.it/mae/doc/dpr396\\_2000.pdf](http://www.esteri.it/mae/doc/dpr396_2000.pdf)

<sup>45</sup> [http://www.camcomtaranto.gov.it/Doc\\_Pdf/RI/decreto95581.PDF](http://www.camcomtaranto.gov.it/Doc_Pdf/RI/decreto95581.PDF)