



# Factsheet:

## Access to Base Registries in Slovenia

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## Slovenia towards Interoperability

From a political perspective, the executive and administrative power is held by the Government of Slovenia. Slovenia has no regional division. The only type of administrative units below the government is municipality with relatively broad public authority. Slovenia is administratively divided into 212 municipalities. In addition to various informal division into provinces, according to the standard scheme of classification of territorial units for statistics within the European Union (NUTS-3), there are 12 statistical regions. For this reason, this organisation has an impact on the development of the digital strategy.

In Slovenia, significant progress has been made in the development of interoperability building blocks. Currently, at national level, it has some pieces of legislation related to interoperability such as the Electronic Commerce Legal Act or the General Administrative Procedure Act, for example. Slovenia also has an interoperability platform called **the Slovenian Interoperability Portal (NIO)**<sup>1</sup>.

The Slovenian Interoperability Portal (NIO), launched in 2010, represents the national interoperability framework in Slovenia. NIO has been established as a special tool for the content management that enables publishing of different standards and guidelines for interoperability, as well as interoperability assets from the technical, semantic, legal and organisational perspective. The portal is supporting the workflow for interoperability assets certification process, the implementation of notification procedures, public consultation and contribution to the decision-making process of interoperability products. The NIO portal is a user focused market place of interoperability assets, which are necessary for the coordinated development, implementation and maintenance of information systems in public administration and beyond.

Many important central databases exist, some with long tradition, holding high quality reference data that can also be used in processes of other institutions. They serve as base registries in practice. Examples are Central Population Registry, Business Registry, Land registry, Vehicles Registry and others. Common identifiers are generally used in those registries - mainly the personal identification number (EMSO) and the tax number (DS).

In terms of base registries' interoperability, each Ministry or registration authority has built their own individual system, each having their own logon method, concepts, forms, methods of signing, etc. The initial base registries situation had two primary characteristics. The first was the complete absence of standards in the field of: data modelling, the structuring of the registries' and records' internal data, the implementation of the registration procedures and entries in the records, and, consequently, in the development of information systems for the registries and records. The second is derived from the fact that the Ministries and bodies ordered the development of systems for the management of registries and records through public procurement, outsourcing the programming stations. Therefore, the systems for the management of registries and records turned up being different and inconsistent with each other. An important gap is also the absence of legislation for regulating this area.

All these led to the implementation of the new project conducted by the Ministry of Public Administration, **"The technical and semantic renovation of registers and records"**. The project will establish a common technological platform for the registries operations. It will also set the standards and the legal basis for the uniform treatment of the registration procedures, optimised on the basis of a common data dictionary, a data map, and tools for data modelling with the aim to ensure the "Once-Only" Principle. New registries and records will be placed on modern cloud infrastructure.

The NIO present activities includes, therefore, the analysis of the public administration information systems with the aim of centralising and interconnecting the base registries. Semantically, it is building a data dictionary (meta data repository), which will contain information about all base registries which exchange information among public administration bodies. They are also currently working on establishing and

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<sup>1</sup> Slovenian Interoperability Portal (NIO): <https://nio.gov.si/nio/vstopna.nio?lang=en>

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pointing out organisations that will be responsible for the maintenance and development of base registries and the data dictionary.

Good examples have been developed recently, demonstrating huge benefits that can be achieved by electronic exchange of data between base registries and other information systems. One example is reusable building blocks that were created for electronic data exchange (TRAY and other building blocks), first in the context of e-social security and later used in many other contexts. The approach and building blocks are also presented as a good practice case in the recent EC study on the new generation of eGovernment services (OGS)<sup>2</sup>.

To improve the alignment between the Slovenian National Interoperability Framework (NIF) and the European Interoperability Framework (EIF) a policy and strategy for interoperability is under preparation and it is planned for the middle of 2017. In the meantime, NIO cross-sectorial editorial board and the Ministry of Public Administration promote and encourage EU interoperability of digital documents. NIO will govern and coordinate implementation and monitoring of the framework with the NIFO valuation method, using key performance indicators and measurable targets of the NIFO analytical model.

At a higher level, in terms of strategies, the country established the **Public Administration 2020 – Slovenian Public Administration Development Strategy 2015 – 2020**<sup>3</sup>. Especially important are measures that will support the development and deployment of digital services, cross-border recognition of electronic identification, and protection of network and information security or data protection. To better coordinate the new strategy, steering bodies has been nominated, i.e. Council for Informatics in Public Administration, acting as the highest decision-making authority to monitor and direct the implementation of the action plan.

In December 2016 Slovenian government also adopted the Guidelines for e-services development, serving for better implementation of e-services by different sectors.

The Republic of Slovenia is developing interoperable e-services in the internal market and will also pay attention to the proposal of the European Parliament and the Council on establishing the programme on Interoperability Solutions for European public administrations, businesses and citizens (ISA<sup>2</sup>). Slovenia will also continue to participate in different initiative under the European Commission, i.e. Horizon 2020 and CEF. Slovenia joined the TOOP project, which is aiming to implement “Once-Only” Principle. The exchange of data from different base registries is the key enabler for the successful implementation of this principle.

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<sup>2</sup> OGS Study [https://joinup.ec.europa.eu/community/opengov/og\\_page/ogs-study](https://joinup.ec.europa.eu/community/opengov/og_page/ogs-study)

<sup>3</sup> Public Administration 2020 [http://www.mju.gov.si/nc/en/media\\_room/news/article/1328/6505/](http://www.mju.gov.si/nc/en/media_room/news/article/1328/6505/)

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## Legal Interoperability

In Slovenia, there is no general law that defines base registries. Such law is planned to be adopted in near future. Specific base registries are defined, therefore, by particular law. As an example, according to the “Law on the Business Registry of Slovenia (PRS)”<sup>4</sup> and “Court Registry Act”<sup>5</sup>, in article 2.1, the Business Registry is defined as the “central database of all business entities located on the territory of the Republic of Slovenia engaged in a gainful activity on their part and on foreign affiliates. The business registry is the primary register for those business and entities for which the law requires to be entered only in the business register.” The Law on Land Registry<sup>6</sup> defines the registry as “a public register that contains information on rights regarding immovable property.”

Some examples of legal provisions for specific base registries are:

- In the case of the **Business Registry**, the “Law on the Business Registry of Slovenia (PRS)” regulates many aspects related to the management and maintenance of the Business Registry. It defines the units of the registry, the determination of its identification, the obligatory use of the content of the registry, how to obtain data for the management of the registry and the storage of documents. Other relevant pieces of legislation are the “Rules on the entry room renters in the Business Register of Slovenia”<sup>7</sup>, “Regulation on keeping and maintaining the Business Registry of Slovenia”<sup>8</sup>, “Fees for re-use of public sector information the Business Registry of Slovenia”<sup>9</sup>, “Instructions on the type and extent of data for a particular legal form unit of the Business Registry of Slovenia”<sup>10</sup>.
- For the **Land Registry**, the “Land Registry Act (ZZK)”<sup>11</sup> regulates the concepts to be used, the information system to support the digitisation of the Land Registry (hereinafter: information system e-QA) software and who is it managed by, the property data and legal facts to be included in the registry, which are the basis for accountability, etc. Other legislation to be considered are the “Rules on Land Registry”<sup>12</sup>, the “Decree on the forms for registration in the Land Registry”<sup>13</sup>, the “Rules on the electronic exchange of data between the Land Registry and Cadastral Registry (Official Gazette of RS, Nos. 58/03, 34/08 - ZST-1, 45/08, 59/90 and 25/11)”<sup>14</sup>, among others.

For the purpose of spatial data infrastructure, “The Infrastructure for Spatial Information Act” regulates the establishment, management and maintenance of the infrastructure for spatial information in the Republic of Slovenia as an integral part of the infrastructure for spatial information in Europe. It is related to the establishment and operation of a metadata system, network services to access the data and their use, coordination in establishing the infrastructure for spatial

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<sup>4</sup> Law on the Business Registry: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO3726>

<sup>5</sup> Court Registry Act: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO320>

<sup>6</sup> Law on Land Registry: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO412>

<sup>7</sup> Rules on the entry room renters in the Business:  
<http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV8582>

<sup>8</sup> Regulation on keeping and maintaining the Business:  
<http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED4247>

<sup>9</sup> Fees for re-use of public sector information the Business Register:  
<http://www.pisrs.si/Pis.web/pregledPredpisa?id=TARI114>

<sup>10</sup> Instructions on the type and extent of data for a particular legal form units of the Business Register:  
<http://www.pisrs.si/Pis.web/pregledPredpisa?id=NAVO838>

<sup>11</sup> Land Registry Act: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO3603>

<sup>12</sup> Rules on Land Registry: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV10437>

<sup>13</sup> Decree on the forms for registration in the land register:  
<http://www.pisrs.si/Pis.web/pregledPredpisa?id=ODRE818>

<sup>14</sup> Rules on the electronic exchange of data between the Land Registry and Cadastral Registry:  
<http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV10752>

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information (ISI) and the use of this infrastructure. It also defines the tasks of individual public entities responsible for establishing, managing and using spatial data and services. The latter have to be provided as an integral part of the Slovenian, together with the European infrastructure for spatial information.

- The “Real Estate Registration Act” regulates different aspects related to the management and maintenance of the Land Cadastre, Building Cadastre, Registry of Administrative Units and Addresses, State border Registry and the Registry of Real Estate Data. All registries are defined as public registries. For the purpose of data sharing and exchange, the article 117. defines the distribution environment within the framework of the state’s central information and communication infrastructure.
- For the **Population Registry**, the “Law on Central Population Register (CRP)”<sup>15</sup> and the “Law on amending and supplementing the Law on the Central Population Register (CPR-A)”<sup>16</sup> governs the determination and use of personal identification numbers and the content of the Central Population Registry (hereinafter: CRP), together with the data flow, control, maintenance, storage, and use.

Other important pieces of legislation are the “Instructions for electronic Central Population Registry”<sup>17</sup>, the “Decree on the operation and maintenance of the Central Population Registry and the procedure for obtaining and communicating information to the Data Registry of the Population”<sup>18</sup>.

- For **Vehicle Registry**, the “Law on Motor Vehicles (BFBC)”<sup>19</sup> regulates the conditions for the placement of motor vehicles and trailers on the market, their registration and participation in the road transport and in the performance of agricultural or forestry work, the conditions for carrying out the tasks of technical services, the registration of organisations managing databases on vehicles and the monitoring of the implementation of this Law. The Rules on the registration of motor vehicles<sup>20</sup> sets out the conditions to be met in the registration of the organisation, the procedures for registration of the motor vehicles and their trailer, the issuance and revalidation of transport permits, the deregistration of vehicles, the change of the owner or user of the vehicle’s data and the issuing of permits for a test drives, record-keeping and the way documents and evidence are stored.

One of the most relevant identified legal constraints is the “**Law on the Protection of Personal Data**”<sup>21</sup>. According to the chapter 7 of the Law, titles “Penalty Provisions”, from the art. 91 onwards, sets the fines quantities (of 4,170 to 12,510 euros) to be paid by a legal persons or individual in case of the law breach.

In order to boost interoperability, a set of legal acts have been institutionalised in the area of electronic commerce, such as infrastructure, equality between paper documents and electronic documents, electronic signatures, administrative procedures and accessibility of public information. These Acts are the “**Electronic Commerce and Electronic Signature Act /ECESA/** (Official Gazette of the Republic of Slovenia, No. 57/2000)”<sup>22</sup> and the “**Decree on Conditions for Electronic Commerce and Electronic Signing** (Official

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<sup>15</sup> Law on Central Population Register: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO1708>

<sup>16</sup> Law on amending and supplementing the Law on the Central Population Register (CPR-A): <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO4555>

<sup>17</sup> Instructions for electronic central population register: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=NAVO623>

<sup>18</sup> Decree on the operation and maintenance of the central population register: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED224>

<sup>19</sup> Law on Motor Vehicles (BFBC): <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO5791>

<sup>20</sup> Rules on the registration of motor vehicles: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=PRAV10486>

<sup>21</sup> Law on the Protection of Personal Data: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO5245>

<sup>22</sup> Electronic Commerce and Electronic Signature Act: <http://unpan1.un.org/intradoc/groups/public/documents/UNTC/UNPAN015724.pdf>

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Gazette of the Republic of Slovenia, No. 77/2000 and 2/2001)<sup>23</sup>. In March 2004 the Act was amended, and the result is the Official consolidated text of the “Act on electronic commerce and electronic signature”.

So far, the interoperability by design principle among base registries is not set, however, this principle is mentioned in the “**Electronic Communications Act**”<sup>24</sup>, in the Art. 90; Art. 105; Art. 112; Art. 196. More specifically, in the Art. 196, paragraph 2, states that Slovenia will “promote the construction and development of trans-European networks, interoperability of pan-European services and end connectivity”.

Another significant piece of legislation is the “**General Administrative Procedure Act**”<sup>25</sup> (ZUP), which serves as the legal basis for e-Government services and the interconnection of authentic sources.

At the moment, in Slovenia there is no legislation supporting the implementation of the “Once-Only” Principle (OOP), although this doesn’t suppose a barrier for its use. A good example of a successful implementation of the principle is the e-Social Security project, where over 50 heterogeneous data sources were connected by a set of reusable and flexible building blocks for electronic data gathering (TRAY and other building blocks, described in "technical interoperability" section).

Therefore, Slovenia is applying the OOP in the government to business, government to customer and government to government areas. It is focusing on the rationalisation of administrative operations. Main targets include sharing of infrastructure among public institutions, for example the NIO portal, and reuse of different modules and horizontal measures to help the development of interoperable solutions.

The type of data that are supplied just once by the citizens and business are personal data related to citizens and identification data related to businesses.

Furthermore, the “Infrastructure for Spatial Information Act” is introducing INSPIRE<sup>26</sup> through the principles:

- Data should be collected only once and kept where it can be maintained most effectively;
- It should be possible to combine seamless spatial information from different sources and share it with different users and application;
- Geographic information needed for good governance at all levels should be readily and transparently available.

Other administrative burden reduction efforts include digital by default, single point of contact, simplification of processes, forms and legal requirements, standardised semantics, reduction in reporting frequency, personalisation of interaction and special help functions.

Regarding open data, from a legislative point of view, the right to access and re-use information in its possession, which has or is supervised by a public authority in Slovenia, is regulated by the “**Access to Public Information Act**”<sup>27</sup> (st. 51/06). In the article 5.3, it is stated that “every applicant has the right, under the same conditions as the other person to acquire the right to re-use information for commercial or non-commercial purposes”.

Furthermore, the Regulation on the “**Transfer and re-use of public sector information**”<sup>28</sup> transposes the Directive 2013/37/EU of 26 June 2013 amending Directive 2003/98/EC on the re-use of public sector

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<sup>23</sup> Decree on Conditions for Electronic Commerce and Electronic Signing:

[http://www.uaipit.com/files/documentos/0000004738\\_Decree%20on%20Conditions%20for%20Ecommerce.pdf](http://www.uaipit.com/files/documentos/0000004738_Decree%20on%20Conditions%20for%20Ecommerce.pdf)

<sup>24</sup> Electronic Communications Act: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO7224>

<sup>25</sup> General Administrative Procedure Act: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO2346>

<sup>26</sup> INSPIRE (Infrastructure for spatial information in Europe) <http://inspire.ec.europa.eu/>

<sup>27</sup> Access to Public Information Act: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO3336>

<sup>28</sup> Regulation on the Transfer and re-use of public sector information:

<http://pisrs.si/Pis.web/pregledPredpisa?id=URED3688>

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information, and sets out the terms of re-usage of the public sector information, along with standards to be respected.

In December 2016 the Ministry of Public Administration has established a national open data portal OPSI<sup>29</sup>, which represents a single national point for online publication of open data. It also provides metadata descriptions of the open data. Before the establishment of OPSI, certain open databases were published since 2013 on the National Interoperability Framework portal (NIO).<sup>30</sup> As an example, the Business Registry provides to the public the direct access to information for re-use via the ePRS application<sup>31</sup>. The information consists of data on all entries in long or short format, data on businesses listed in the Court Registry in long or short format, data on sole proprietors, data on the basis of individual contracts or collected data according to criteria set by the user (numerical data).<sup>32</sup>

The “**Technical and semantic renovation of registries and records**” project, which is foreseen to provide improvements to base registries, intends to provide data as open data. The Ministry of Public Administration is planning to have a broader list of base registries. They will provide some of their data as open, usually data that is not sensitive or personal, together with their metadata attributes. These will be published on the new national open data portal by the end of this year.

The **Action Plan of the Slovenian Public Administration Development Strategy 2015-2020**<sup>33</sup> also includes measures on transparency and open data.

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<sup>29</sup> <https://podatki.gov.si/>

<sup>30</sup> NIO <https://nio.gov.si/>

<sup>31</sup> Business Registry application: <http://www.ajpes.si/prs/>

The ePRS application allows the user to access data on individual entries in the Slovenian Business Registry for businesses performing economic activities within the territory of the Republic of Slovenia.

<sup>32</sup> Business Registry open data [http://www.ajpes.si/Registri/Poslovni\\_register/Ponovna\\_uporaba](http://www.ajpes.si/Registri/Poslovni_register/Ponovna_uporaba)

<sup>33</sup> Public Administration Development Strategy 2015-2020:  
[http://www.mju.gov.si/en/media\\_room/news/article/1328/6505/](http://www.mju.gov.si/en/media_room/news/article/1328/6505/)



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## Organisational Interoperability

The administration of the specific base registries takes place at national level through their respective Ministries/Authorities. For all the systems that are in use, there is some governance in place. For the business-critical systems the governance is stronger compared to the one for smaller systems.

For the National Interoperability Framework and for TRAY<sup>34</sup>, responsible teams were set for the procedures dealing with the operational governance. Also, cross-sector coordination bodies were settled with the aim of ensuring wide and proper use of management structure and strategic alignment. For the sustainable development of NIO, a dedicated network of sectorial editors was established.

The interoperability governance was renewed in February 2017 by nominating government representatives and technical experts for the editorial board of NIO portal. The NIO portal enables stakeholders to discuss all interoperability levels (legal, organisational, semantic, and technical) and to stimulate and recommend the common use of policies and semantic methodologies (e.g. XML-schemas, naming and identification principles for data elements and e-documents).

The cross-organisational body responsible for the base registries governance has not yet been established. There is a plan to establish a cross-organisational governance body responsible for maintaining the catalogue of base registries, for maintaining the central metadata repository, for managing the central controlled vocabulary (thesaurus), and for managing the central code lists catalogue and other semantic interoperability assets. The goal of this cross-organisational governance body will also be coordinating the activities regarding the “Once-Only” Principle in the public sector and preparing the legislation in the area of semantic interoperability.

The base registries’ data is gathered through local offices and forwarded to the national registries. Slovenia has tens of registries, the main ones being gathered in the following table together with the Public Administration bodies to which they belong:

Base Registry	Authority	Master Data
General Civil Registry (CRP - Centralni register prebivalstva)	Ministry of internal affairs.	Personal data (natural and legal persons)
Spatial Registry (RPE - Register prostorskih enot)	Ministry of environment and spatial planning, Surveying and mapping authority of the Republic of Slovenia (GURS)	Administrative units and addresses
Business Registry (PRS - Poslovni register Slovenije)	The Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES)	Business data
Real Estate Registry (Register nepremičnin)	Ministry of environment and spatial planning, Surveying and mapping authority of the Republic of Slovenia (GURS),	Land cadastre, Building cadastre
Surveying and Mapping Registry (GURS - Geodetska uprava RS)	Ministry of environment and spatial planning, Surveying and mapping authority of the Republic of Slovenia,	Ownership data

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<sup>34</sup> Central system used for electronic data enquires. It acts as an intermediation platform that permits to integrate data from many different data sources.

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Vehicle registry (MRVL - Podatki o vozilih)	Slovenian Traffic Safety Agency (Javna agencija RS za varnost prometa (AVP))	Vehicle data
Land Registry ZK - Zemljiška knjiga	Supreme court of Republic of Slovenia	Land Registry

Between base registries and the public authorities there are Service Level Agreements (SLAs) for data sharing.

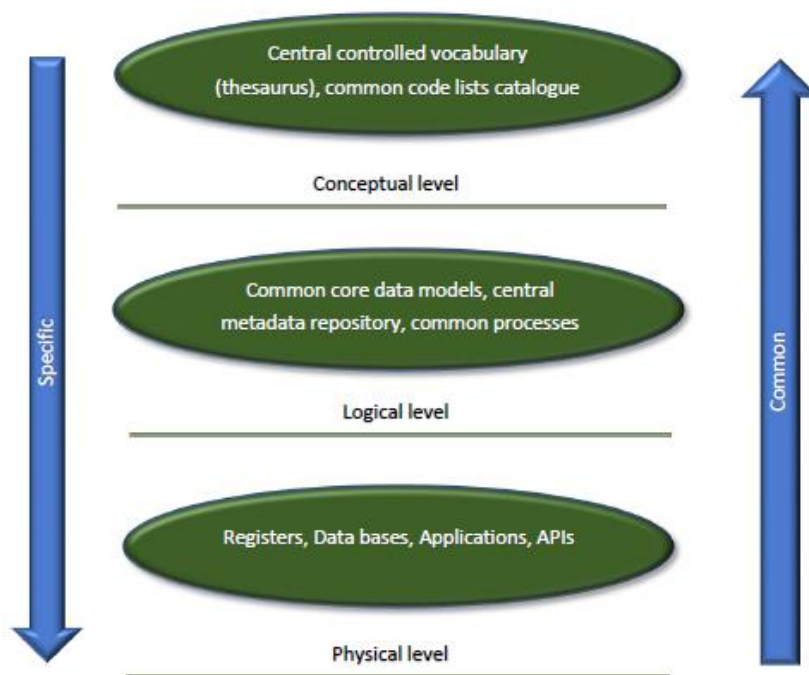
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## Information Interoperability

The Slovenian model for the semantic interoperability is based on four aspects: the platforms and services, a partial list of base registries published on the NIO portal, the data models and standards, and the semantic assets.

The NIO portal is a unified national point dedicated to the access to data, which the public administration offers to the interested public. Also, TRAY is the intermediation platform that permits to integrate data from many different data sources. At the moment the XML schemas are designed and adapted to individual cases of data exchange. These "bilaterally agreed schemes" contain only the data attributes that are relevant in the given context, so the "need-to-know" principle is generally followed. This platform also provides the access of base registry information to other public/private organisations and citizens through public services.

A central controlled vocabulary (thesaurus) is a new initiative to provide common terminology and generic data models for the Slovenian base registries to exchange data for the entire public administration. There is a special project dealing with this task and it is expected to produce a new multi-purpose conceptual layer and logical data model layer that will serve as a commonly agreed data scheme for the whole public administration. For now, it exists for a limited number of base registries and it will be published soon.



*Levels of modelling in new initiative*

There also exists a catalogue of spatial metadata which can be retrievable from the Central Evidence of Spatial Metadata<sup>35</sup> (CESM). This is the most complete list of the existing digital spatial data in the Republic of Slovenia.

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<sup>35</sup> Central Evidence of Spatial Metadata – CESM: [http://prostor3.gov.si/cepp\\_ang/index.jsp](http://prostor3.gov.si/cepp_ang/index.jsp)

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Related to the data formats, Slovenia uses highly used standards such as XLS, CSV, ZIP, DOC, PDF, XLSX, XML, and GML to represent the base registry information. The exhaustive list of the format is available on the NIO webpage<sup>36</sup>. In order to improve the exploitation and the interoperability of the data, there are plans to upgrade and enhance the data model based on more complex formats such as ontologies (RDF, RDFS, and SKOS). For this purpose, they are investigating the possibility to use VocBench tool<sup>37</sup>, which is promoted by the ISA<sup>2</sup> programme. For now, the format to publish the metadata in the Data Dictionary is done with NIEM<sup>38</sup> (National Information Exchange Model) XML-based format to enable a shared understanding of the data that is made available across all APIs provided by the organization.

They also use standards and protocols to facilitate the Information Exchange processes. The Content Assembly Mechanism<sup>39</sup> (CAM) is the main format used to describe the data exchange. SOAP and REST are other standards used by Slovenia for this purpose.

At the level of e-documents in 2013 Slovenia launched an initiative and prepared the concept for e-documents for secure exchange between different information systems. Concept follows the results of SPOCS large scale pilot and some good practice from other MS: It is successfully implemented in the e-services of the national Point of Single Contact for business. The project is planning to be involved in the ISA<sup>2</sup> action, covering e-documents.

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<sup>36</sup> NIO formats list on NIO: <http://nio.gov.si/nio/catalog/>

<sup>37</sup> VocBench tool: <http://vocbench.uniroma2.it/>

<sup>38</sup> NIEM format: <https://www.niem.gov/>

<sup>39</sup>Content Assembly Mechanism (CAM): [https://en.wikipedia.org/wiki/Content\\_Assembly\\_Mechanism](https://en.wikipedia.org/wiki/Content_Assembly_Mechanism)

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## Technical Interoperability

The key levers for technical interoperability between base registries, in order to provide access to the data, are secure technical systems and infrastructures and common set of standards.

More recently, the main IT projects fostering interoperability in Slovenia, are carried out by the Public Administration and monitored, by the Ministry of Public Administration. The main relevant systems and infrastructures are:

### *NIO*

The Slovenian interoperability platform is the NIO portal as the basic cornerstone of the national interoperability framework in Slovenia. The portal allows various stakeholders to publish standards and guidelines on interoperability, interoperability information, and interoperability assets important at the national level. The portal has been upgraded in accordance with standard ADMS Application Profile for the creation of automated mirroring content to the Joinup platform (<https://joinup.ec.europa.eu/node/70676/>). NIO supports the use of cloud storage on the basis of the SWIFT system, which is also included in the solution of open source system for managing OpenStack cloud infrastructure.

### *TRAY and other building blocks for electronic exchange of data*

The system is composed of 4 core building blocks:

- **TRAY:** central system for electronic data enquires. It enables efficient, reliable and secure collection of data for different clients, from numerous and heterogeneous data sources, by handling electronic data enquiries and electronic answers. Moreover, it also enables the handling of data sources in a customized and parameterized way.
- **IO-MODULE:** common platform for standardized data distribution. Used by institutions for distributing data to the related clients. Additionally, the system enables to maintain the electronic trail of data distributed and to see which user received which data, when and for what specific purpose.
- **ASYNCHRONOUS MODULE:** enables electronic enquiries to data sources that are not accessible via synchronous access. By using this system, it is possible to communicate with data sources via specific “waiting rooms”, where all questions for a data source are collected and after being processed and answered by data source, transmitted back to the calling system with related answers.
- **SECURITY PLATFORM:** enabling a multilevel management of users’ privacy and rights. The system can also be integrated into other authentication systems.

Today this system functions as the data core for all social support in Slovenia. It is highly flexible and reusable also in other contexts (e-government portal, e-procurement platform, one-stop-shop for business EUGO...). The system was also presented as a good practice example in the recent EC study on new generation of e-Government services (OGS)<sup>40</sup>.

Some short videos<sup>41</sup> were published showing the concept and functioning of the building blocks.

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<sup>40</sup> [https://joinup.ec.europa.eu/community/opengov/og\\_page/ogs-study](https://joinup.ec.europa.eu/community/opengov/og_page/ogs-study)

<sup>41</sup> <https://www.youtube.com/playlist?list=PLHv62MmqQQDAMHchaXo2Pq6r7RT2Kq561>

The new Reference architecture has been proposed. It is a typical three tier architecture: it is composed by a data layer (data persistence based on NoSQL and ORACLE databases), an integration layer (based on JBOSS and Web Services technologies) and the presentation layer (based on the Java CMS called Liferay and HTML/JavaScript technologies).

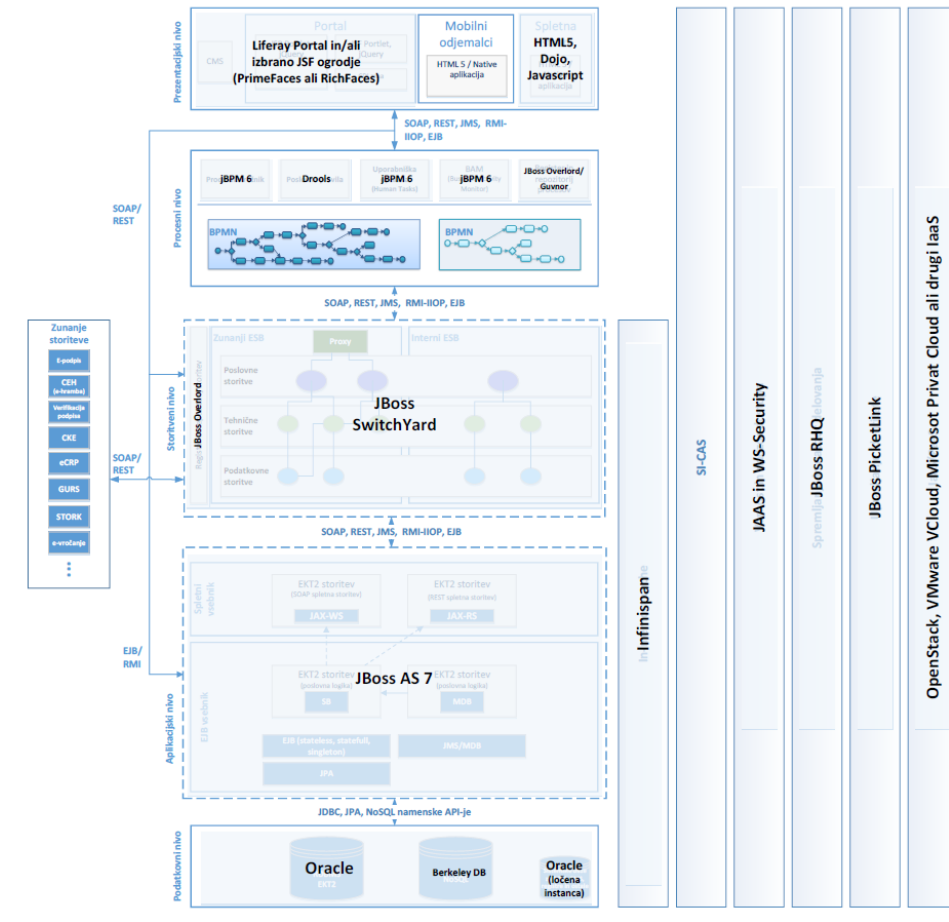


Figure 1: Reference Architecture

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## Cross-border Interoperability

The European Single Market drives the needs for more cross border exchange of data. Next to initiatives on European Level, Member States sometimes also enter in close cross border cooperation. Accordingly, Slovenia is a member of EUCARIS<sup>42</sup>, and is making use of the EUCARIS technology for information exchange based on the Road Safety Directive (2015/413/EU). It is also member of ECRIS and EULIS.

The Declaration on Activities of the Republic of Slovenia in the Institutions of the European Union published in 2015 (DeUDIEU15<sup>43</sup>) was the starting point for the cross-border. In this declaration, two specific chapters explicitly mentioned the necessity to exchange data between countries:

- Chapter on **Transport, Telecommunications and Energy**; In Slovenia, there is no explicit mention of BRs sharing data between them, however there are occurrences in which central registries at the national level gather data from BRs in order to provide with a full overview of a citizen's data. This is the instance of the Central Civil Registry.
- Chapter on **Justice and Home Affairs; Subchapter - Internal Security**; In terms of cross-border data sharing, Slovenia shares data and information for traffic and road safety. Moreover, there is international coordination of information between police bodies, which in turn enables for international criminal investigations.

In addition, Slovenia is participating in several European initiatives in which they developed and deployed mechanism to enable international exchange of data.

Slovenia is a member of EUCARIS<sup>44</sup> (EUropean CAR and driving license Information System), EULIS<sup>45</sup> (EUropean Land Information Service) and ECRIS<sup>46</sup> (EUropean Criminal Records Information System). In these initiatives, standards and protocols are implemented among several MS systems.

Furthermore, the Ministry of Public Administration is involved in different large-scale pilots implementing cross-border e-services, like STORK 2.0 and SPOCS (both projects already finished) and e-SENS projects. Data sharing is performed to identify the applicant and to exchange other attributes required to complete the formalities.

Ministry of Public Administration is also one of the partners in the application for Horizon 2020 call for Once Only Principle implementation on the EU level.

Slovenian national institutions/agencies network (hereinafter referred to as "HKOM") is connected to the TESTA-ng. Institutions/agencies, which are connected to the HKOM, are, if needed, also connected to the TESTA-ng.

Base registries of Administrative units, Addresses and Real estate are included in already finished project European Location Framework (ELF<sup>47</sup>) using web services based on INSPIRE principles.

INSPIRE is based on the infrastructures for spatial information established and operated by the Member States of the European Union.

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<sup>42</sup> EUCARIS (European Car and Driving License Information System) <https://www.eucaris.net/>

<sup>43</sup> DeUDIEU15: <http://www.pisrs.si/Pis.web/pregledPredpisa?id=DEKL39>

<sup>44</sup> EUCARIS (EUropean CAR and driving license Information System): <https://www.eucaris.net/>

<sup>45</sup> EULIS (EUropean Land Information Service): <http://eulis.eu/>

<sup>46</sup> ECRIS (EUropean Criminal Records Information System): [https://e-justice.europa.eu/content\\_criminal\\_records-95-en.do](https://e-justice.europa.eu/content_criminal_records-95-en.do)

<sup>47</sup> ELF (EUropean Location Framework) <http://www.elfproject.eu/content/overview>

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

Slovenia has created a page indicating usage of E-services in January 2016, however currently it is not in use and contains no data related to Slovenian usage of e-services<sup>48</sup>.

Slovenia offers a catalogue of several services in order to provide access to the BR information. The e-Government platform/portal<sup>49</sup> offers over 180 e-services. They are called E-Government Public Services and they corresponds to the base registries listed below.

For each BR, the most important life events are also presented:

- Tax registry (DURS<sup>50</sup>): change in incomes, change in assets,
- Civil registry (CRP<sup>51</sup>): birth/deceased of person,
- Vehicle registry (MRVL<sup>52</sup>): vehicle registration/un-registration,
- Business registry (PRS<sup>53</sup>): creation/dissolution of company,
- Real estate registries (GURS: basic information about purchase/sale and valuation of real-estate, land parcel, building and address registration are available on e-government portal<sup>54</sup> and detail information about data, different viewers, services, data download at spatial portal<sup>55</sup>).
- The Health Insurance Institute of Slovenia (ZZZS); Employment service of Slovenia (ZRSZ);
- Pension and disability insurance institute of Slovenia (ZPIZ): e-Sociala;
- Business registry (PRS);
- Register of transaction accounts (RTR<sup>56</sup>):
- Business registry (PRS<sup>57</sup>):

The services aren't accessible multi-modally (as specified by the W3C<sup>58</sup>), as the e-Uprava portal<sup>59</sup> is a beta version and still under construction. A new version of the portal was released on July 2016.

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<sup>48</sup> Link to Usage Statistics: <http://e-uprava.gov.si/aktualno/statistika-uporabe.html>

<sup>49</sup> E-Government portal: <http://e-uprava.gov.si/>

<sup>50</sup> Tax registry (DURS): <https://e-uprava.gov.si/podrocja/davki.html>

<sup>51</sup> Civil registry (CRP): <https://e-uprava.gov.si/podrocja/osebni-dokumenti-potrdila-selitev/potrdila-izpiski.html>

<sup>52</sup> Vehicle registry (MRVL): <https://e-uprava.gov.si/podrocja/promet-prometna-infrastruktura.html>

<sup>53</sup> Business registry (PRS): <https://e-uprava.gov.si/podrocja/podjetnistvo.html>

<sup>54</sup> Land registry (RPE, GURS): <https://e-uprava.gov.si/podrocja/nepremicnine-in-okolje.html>

<sup>55</sup> Land registry (RPE, GURS): Prostorski portal <http://e-prostor.gov.si>

<sup>56</sup> Register of transaction accounts (RTR): e-Dosje <http://ejn.gov.si/e-dosje>

<sup>57</sup> Business registry (PRS): e-VEM <http://evem.gov.si/evem/drzavljeni/zacetna.evem>

<sup>58</sup> W3C multimodal access: <https://www.w3.org/standards/webofdevices/multimodal>

<sup>59</sup> e-Uprava portal: <https://e-uprava.gov.si/en>