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Commission



LIFO: Location Interoperability Framework Observatory

2020 COUNTRY FACTSHEET

ITALY



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1. Introduction



The Location Interoperability Framework Observatory (LIFO¹) monitors the implementation of location interoperability good practices in European public administrations.

The monitoring is based on the level of adoption of the recommendations set out in the five focus areas of the European Union Location Framework (EULF) Blueprint² (see [Figure 1](#)).

The EULF Blueprint provides guidance for implementing the European Interoperability Framework (EIF)³ in the geospatial domain.

Consequently, the LIFO complements the EIF monitoring mechanism operated by the National Interoperability Framework Observatory (NIFO)⁴.

LIFO is coordinated by the European Location Interoperability Solutions for e-Government (ELISE)⁵ action in the Interoperability Solutions for European Public Administrations, Businesses and Citizens (ISA²)⁶ programme.



Figure 1 - EULF Blueprint focus areas

¹ <https://joinup.ec.europa.eu/collection/elise-european-location-interoperability-solutions-e-government/solution/lifo-location-interoperability-framework-observatory/about>

² <http://data.europa.eu/w21/8e942bc2-657a-4289-b057-f2a285ee7375>

³ https://ec.europa.eu/isa2/eif_en

⁴ https://ec.europa.eu/isa2/solutions/nifo_en

⁵ <https://joinup.ec.europa.eu/collection/elise-european-location-interoperability-solutions-e-government/about>

⁶ https://ec.europa.eu/isa2/home_en

The LIFO data collection is carried out through an online questionnaire sent to country representatives for digital government in the geospatial domain. The questionnaire is based on the LIFO analytical model⁷. This model is composed of primary indicators, calculated using information provided by respondents to the online questionnaire, and secondary indicators, reusing information from existing sources, for example, the monitoring under the INSPIRE Directive⁸. The indicators address good practices in the provision and use of location data in digital government and are shaped by the European policy context. They include measures relating to several EU directives and regulations including, for example, required datasets and means of access under both the INSPIRE Directive and the Open Data Directive⁹, obligations under the General Data Protection Regulation (GDPR)¹⁰, approaches under the Public Procurement Directive¹¹, and factors relevant to the EIF¹².

LIFO involves participating countries that are either EU Member States or other countries implementing the INSPIRE Directive. Results for the non-EU Member States, which apply EU legislative provisions on a voluntary basis, have their own alternatives, or apply the provisions only for specific aspects, must be read taking this into account.

The first LIFO data collection was in 2019 and the second in 2020. The LIFO 2020 model improves the monitoring capabilities of the model used in 2019, while being substantially aligned with it.

LIFO results are published on Joinup (see [Figure 2](#)) in the form of *Country factsheets*¹³ and a *European State of Play Report*¹⁴ and are available for users to explore in the *LIFO interactive dashboards*¹⁵, which are linked in their turn to the *EULF Blueprint*¹⁶.



Figure 2 - LIFO online resources

⁷ See [Annex 1](#) for the scoring methodology used in the model and [Annex 2](#) for a list of indicators

⁸ See <https://inspire.ec.europa.eu/inspire-directive/2>. As reported in the EULF Blueprint, “Geospatial or location interoperability has been a major feature of both the ISA2 Programme and the predecessor ISA Programme. There was a strong basis for this with the adoption and implementation of INSPIRE. INSPIRE has driven forward the implementation of harmonised pan-European geospatial data for European environmental policy, and has paved the way to stronger location interoperability in other domains where harmonised geospatial data play a significant role.”

⁹ <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32019L1024>

¹⁰ <https://eur-lex.europa.eu/eli/reg/2016/679/oj>

¹¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014L0024&qid=1428299560152&from=EN>

¹² As introduced by the Communication from the European Commission of 23/3/2017: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2017%3A134%3AFIN>

¹³ <https://joinup.ec.europa.eu/node/704194>

¹⁴ <https://joinup.ec.europa.eu/node/704361>

¹⁵ <https://joinup.ec.europa.eu/node/704247>

¹⁶ <https://joinup.ec.europa.eu/collection/elise-european-location-interoperability-solutions-e-government/solution/eulf-blueprint/about>

The information collected through LIFO can be used to examine current national and European status, compare countries, identify strengths and areas needing improvement, uncover best practice solutions, and plan appropriate measures, including potential partnerships and reuse of solutions.

The LIFO State of Play and the emerging best practices are incorporated in updates to the EULF Blueprint, ensuring the guidance framework remains up-to-date.

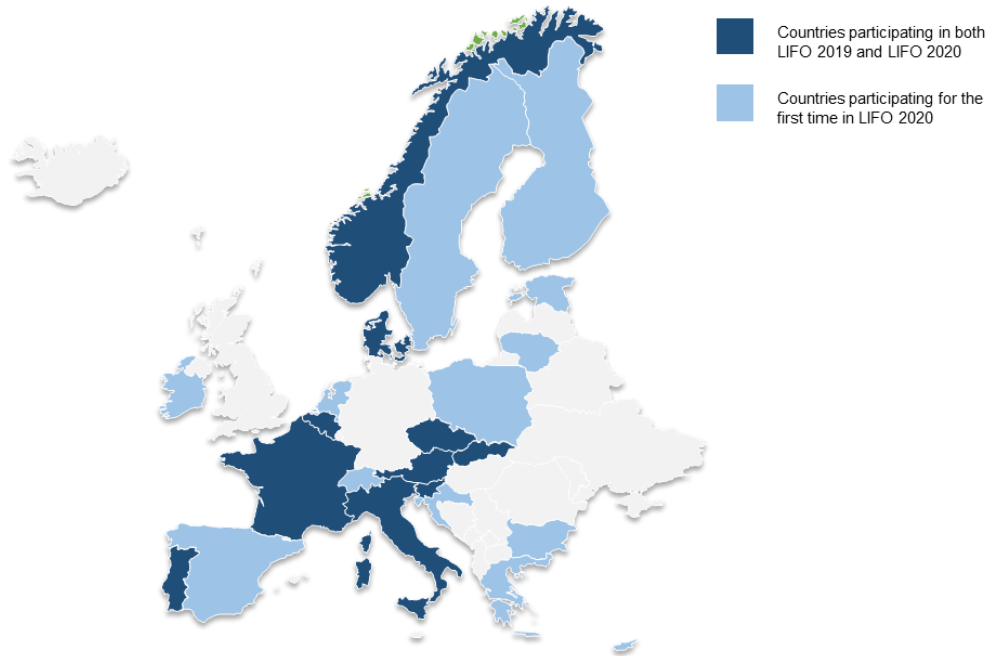


Figure 3 - LIFO participating countries in 2019 and 2020

The LIFO 2019 data collection involved 10 countries, whereas the LIFO 2020 data collection involved 23 countries. Appreciation is given to all participants who contributed to the survey responses and provided further information to ensure the results are representative of the national state of play (see [Figure 3](#))¹⁷.

¹⁷ Countries participating in both LIFO 2019 and LIFO 2020: Austria, Belgium, Czech Republic, Denmark, France, Italy, Norway, Portugal, Slovakia and Slovenia; Countries participating for the first time in LIFO 2020: Bulgaria, Croatia, Cyprus, Estonia, Finland, Greece, Ireland, Lithuania, Netherlands, Poland, Spain, Sweden and Switzerland.

2. Structure of the document

This factsheet provides an overview of the information collected on location interoperability in Italy in 2020. Its main section is the [Location Interoperability State of Play](#) where information is provided at two levels:

- **Overview of results**, organised as follows:
 - [2020 Results](#): describes the location interoperability state of play in the country across all five focus areas, together with a summary chart and a table with the main strengths and weaknesses;
 - [2019/2020 Comparison](#): compares the overall results between 2019 and 2020 across the five focus areas for the country and in relation to European trends; these comparisons are displayed in a comprehensive chart;
- **Detailed results by focus area**, organised in five sections, each with the following:
 - **2020 results**: while the overview section gives a bird's eye view of the status across all focus areas, the focus area sections give a more detailed picture, with the vision and recommendations for the focus area, followed by an analysis of the state of play in the country for each of the recommendations. Two focus area charts are included, one displaying the average scores for each recommendation and the other the individual scores for the underlying indicators. In both charts, scores are compared with the average of the monitored countries. The titles of the charts are linked respectively to the table of recommendations in the focus area and to the relevant indicators in [Annex 2](#).
 - **2019/2020 comparison**: compares the results between 2019 and 2020 for each recommendation in the focus area, with a chart and explanatory text.
- [Best Practices](#): This section highlights initiatives and applications provided as survey 'evidence' which demonstrate the adoption of EULF Blueprint good practices in one or more focus areas / recommendations.

Lists of [abbreviations and definitions](#), [figures](#) and [tables](#): these aid cross-referencing in the document.

Annexes to the document are:

- [Annex 1](#): The method of scoring and normalisation applied to the indicators;
- [Annex 2](#): A list of indicators used for each of the recommendations, together with a summary of 2020 indicator changes;
- [Annex 3](#): Additional information for Italy comprising the questionnaire response, scores and charts from the response, and a 2019/2020 comparison table.

The 2020 LIFO monitoring information for Italy has been provided by the “*Agenzia per l'Italia Digitale*”.

3. Location Interoperability State of Play

3.1. Overview

3.1.1 2020 Results

The information collected through the LIFO 2020 data collection indicates that Italy reached an overall level of location interoperability close to the European average. Scores in three of the five focus areas basically aligned with the European average, while the positive deviation in “Governance, Partnerships and Capabilities” compensated for the negative deviation in “Digital Government Integration” (see [Figure 4](#)).

The strongest focus area for Italy is “Policy and Strategy Alignment”, similarly to most participating countries. Italy reports a very high level of alignment between location strategy and digital strategy, which is the main driver of the country’s good positioning in this focus area and an absolute excellence among all participating countries. The use of geospatial standards as reference for public procurements of location information and services is where the margins for improvement, on the contrary, are higher.

A peculiarity of Italy’s location interoperability state of play is the high score reached in the focus area “Governance, Partnerships and Capabilities”, where Italy is best positioned relative to the European average (this focus area is usually the weakest for most participating countries). In this regard, the strengths of Italy’s practices are the involvement of stakeholders in the decision-making process on the role of location information in Digital Government, the initiatives organised to raise awareness and develop geospatial skills, and the agreements signed with other countries’ public authorities to finance, build and operate cross-border location data services.

The score for the focus area “Standardisation and Reuse” is relatively high and aligned with the European average. A high level of reuse of generic ICT solutions pushes the score up, while the gaps in terms of compliance with INSPIRE implementing regulations for datasets and network services are particularly wide.

In the “Return on Investment” focus area, Italy sits in the middle of the scale, with a positioning slightly below the European average. The efforts made to communicate the benefits of integrating and using location information in digital public services offset the gaps reported for the approach to monitoring the efficiency and effectiveness of location-enabled services.





“Digital Government Integration” is the focus area both with the lowest score and where the gap against the European average is the highest among the five focus areas. This is mostly due to the low maturity in integrating location and statistical information in the production of location-based statistics and to the limited use of a collaborative methodology to design and develop location-enabled services.

The LIFO index for Italy combining the scores for all focus areas is 0.52, almost aligned with the European average LIFO index, which is 0.55.



Figure 4 – Overall EULF Blueprint implementation

The following table summarises the main strengths and weaknesses of Italy across the five focus areas:

| Focus Area | Strengths | Weaknesses |
|---|--|--|
|  Policy and Strategy Alignment | <ul style="list-style-type: none"> • High degree of alignment in the location strategy on digital government elements • General cross-sector legislation mandating the use of authoritative location datasets and services in digital government | <ul style="list-style-type: none"> • INSPIRE and other geospatial standards are only generically referenced in the documents for public procurement of location information |
|  Digital Government Integration | <ul style="list-style-type: none"> • Open and collaborative methodology adopted to design and improve location-enabled digital public services | <ul style="list-style-type: none"> • Limited array of actions implemented for the integration of location and statistical information in the production of location-based statistics |
|  Standardisation and Reuse | <ul style="list-style-type: none"> • Quality of location data ensured by several actions at the design level | <ul style="list-style-type: none"> • Lack of a common architectural approach for location data and services • No systematic discovery and incorporation of new technological features or emerging technologies |
|  Return on Investment | <ul style="list-style-type: none"> • Communication on the availability and benefits of location data and location-enabled digital public services to raise awareness and | <ul style="list-style-type: none"> • The efficiency and effectiveness of location-based services is measured only for some projects or services |


| Focus Area | Strengths | Weaknesses |
|--|--|------------|
| | understanding delivered via several channels | |
|  Governance, Partnerships and Capabilities | <ul style="list-style-type: none"> • Extensive and consistent set of initiatives organised to raise awareness and develop geospatial skills • Strongly integrated joint leadership and coordination on actions and policies related to the role of the SDI in Digital Government | |

Table 1 – Strengths and Weaknesses by Focus Area

3.1.2 2019/2020 Comparison

Italy is one of the countries that have participated in both the LIFO 2019 and LIFO 2020 data collections. Comparisons over the two years can be made both with the results for the country itself and with the European averages (see [Figure 5](#)).

As the number of participants has increased significantly from 10 in 2019 to 23 in 2020 (including the 10 from 2019), the figure shows two different 2020 European averages for comparison: firstly, the average for all countries participating in 2020 (yellow line); secondly, the average for the subset of countries that participated in both years (green line). The same figure also shows the 2019 averages.

The structure of the EULF Blueprint (and therefore of LIFO) in terms of focus areas and recommendations has remained the same over the years, allowing valid comparisons at these levels. However, changes were made in 2020 to a small number of specific indicators to reflect learning from 2019 and latest developments impacting location interoperability in Europe. Further details are available in [Annex 2](#).

Between 2019 and 2020, the LIFO index for Italy has increased from 0.47 to 0.52. This is due to the positive variations in the following focus areas:

- “Policy and Strategy Alignment”, arising from the increased alignment between the location and digital government strategies;
- “Standardisation and Reuse”, thanks to the reinforced data quality governance and the more advanced use of APIs;
- “Governance, Partnerships and Capabilities”, due to the implementation of initiatives aimed at raising awareness and developing geospatial skills, and consolidation of the governance of the role of SDI in digital government.

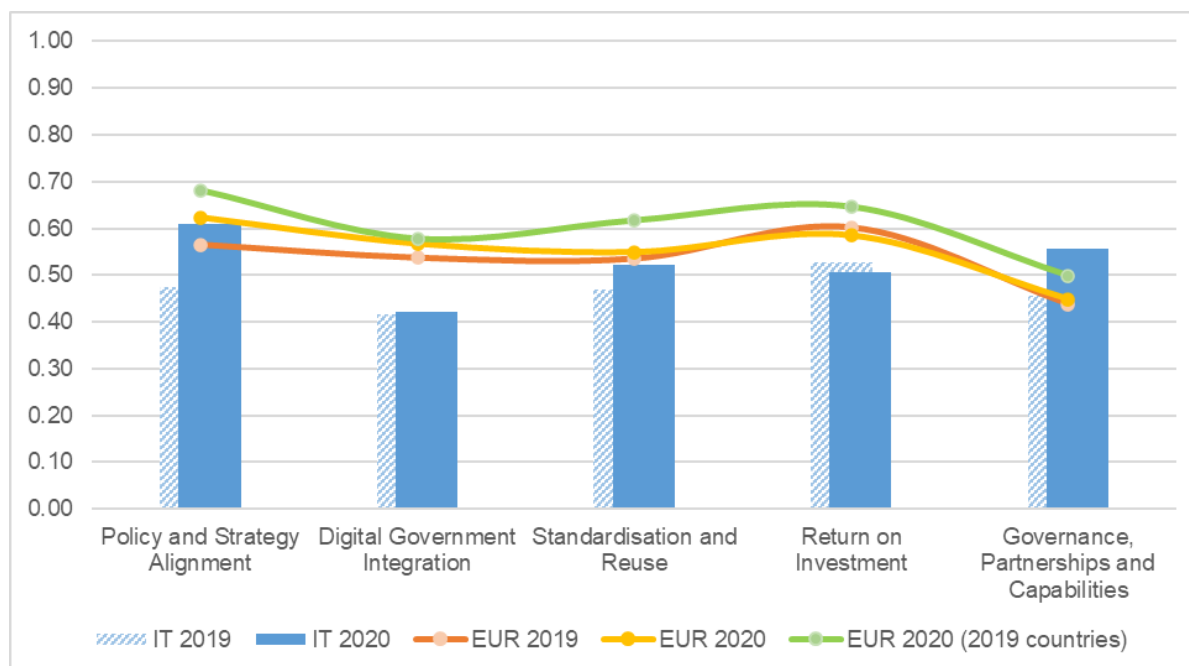


Figure 5 – Comparison between LIFO 2019 and LIFO 2020 - Italy

The most significant improvement is in the “Policy and Strategy Alignment” focus area, with its index increasing by 0.13 (from 0.48 in 2019 to 0.61 in 2020) due to the steps taken under several recommendations. In 2020, Italy has not only completely recovered the gap from the European average (the yellow line in [Figure 5](#)) but also the gap with the countries participating in LIFO 2019 (the green line in [Figure 5](#)), which has decreased from -0.09 to -0.07. The factors impacting the positive evolution between 2019 and 2020 in this focus area are for [Recommendation 1](#), [Recommendation 2](#), [Recommendation 3](#) and [Recommendation 4](#). In particular, under [Recommendation 1](#), as detailed in [3.2](#), a major step forward has been made with the publication of the third version of the *Three-Year Plan for ICT in Public Administration*¹⁸, which applies the principles of the *Strategic Plan for the Digital Growth*¹⁹ that has come to a conclusion in 2020. The other main changes in this focus area have been an increase in the number of datasets that are now available under minimum restrictions ([Recommendation 2](#)) and the improvement in the preparedness of public administrations for the implementation of the GDPR, where gaps have started being filled ([Recommendation 3](#)). Finally, Italy has increased its score in 2020 by making use of location-based evidence and analysis to help develop relevant policies in most relevant policy topics ([Recommendation 4](#)).

The “Governance, Partnerships and Capabilities” focus area also stands out as a point of strength for Italy, compared with the 2020 participating countries – ‘EUR 2020’ – and with the 2019 participating countries – ‘EUR 2020 (2019 countries)’. This focus area has seen a significant improvement, increasing by 0.10 (from 0.46 in 2019 to 0.56 in 2020), surpassing the European average both for the ‘EUR 2020’, which has remained the same as in 2019, and for the ‘EUR 2020 (2019 countries)’ which has increased by 0.06. This big step forward is linked with the reinforcement of a collaborative governance of the SDI in the context of digital government ([Recommendation 17](#)) as well as with the consolidation of the investments in communications and skills to improve the use of location information in digital public services ([Recommendation 19](#)).

“Standardisation and Reuse” contributed only to a limited extent to the overall progress of the LIFO index, increasing by 0.05 in 2020 compared with 2019. This was due to the progress

¹⁸ <https://docs.italia.it/italia/piano-triennale-ict/pianotriennale-ict-doc/it/2020-2022/index.html>

¹⁹ https://www.agid.gov.it/sites/default/files/repository_files/documentazione/strat_crescita_digit_3marzo_0.pdf

achieved on location data quality ([Recommendation 13](#)) and the adoption of a common architecture ([Recommendation 10](#)).

“Digital Government Integration” remained unchanged at 0.42 in 2020 and 2019. The gap with the ‘EUR 2020 (2019 countries)’ has slightly increased (-0.12 in 2019 compared with -0.16 in 2020). This is the combined outcome of two factors: firstly, the lack of more extended innovative use of location information in digital public services; secondly, the impacts from the change of scale of the indicators on open collaboration.

Italy’s positioning in the “Return on Investment” focus area has slightly deteriorated in relative terms, as the gap with the ‘EUR 2020 (2019 countries)’ has increased from -0.07 in 2019 to -0.14 in 2020. Compared with the entire sample of participants (EU 2020 average), Italy’s positioning has remained put due to the fact that EUR 2020 is lower than EUR 2019 as shown in [Figure 5](#). Similarly, compared with the 2019 performance, Italy confirmed its positioning.

Although Italy’s positioning has improved between 2019 and 2020, this has not closed the gap with the other countries participating in both years. This is represented in [Figure 5](#) by Italy’s scores placed below the green data series, with the exception of the “Government, Partnerships and Capabilities” focus areas.

The following sections present the results in detail for each focus area.

3.2. Policy and Strategy Alignment


| Vision | |
|---|--|
|  | There is an aligned and coordinated policy and strategic approach across Europe for the use of location information that enables more efficient and effective integration of cross-sector and cross-border location-based applications, reducing costs and increasing social and economic benefit. Public sector location policies promote accessibility and interoperability. There are simple and consistent approaches to licensing, progressive open data policies that balance the needs of data users and suppliers, and authentic registers in which 'location' has a prominent role. |
| Recommendation 1 | Connect location information and digital government strategies in all legal and policy instruments. |
| Recommendation 2 | Make location information policy integral to, and aligned with, wider data policy at all levels of government. |
| Recommendation 3 | Ensure all measures are in place, consistent with legal requirements, to protect personal privacy when processing location data. |
| Recommendation 4 | Make effective use of location-based analysis for evidence-based policy making. |
| Recommendation 5 | Use a standards-based approach in the procurement of location data and related services in line with broader ICT standards-based procurement. |

Table 2 - Focus Area "Policy and Strategy Alignment" - vision and recommendations

3.2.1 2020 Results

The scores for each recommendation in the “Policy and Strategy Alignment” focus area are shown in [Figure 6](#) and the indicator scores for each recommendation are shown in [Figure 7](#). In both cases, the country scores are compared with the European averages.

The “Policy and Strategy Alignment” focus area index for Italy is 0.61, compared with a European average of 0.62. The country is very well positioned in the strategic and policy making dimensions but has a below-average standing in location data privacy and public procurement.

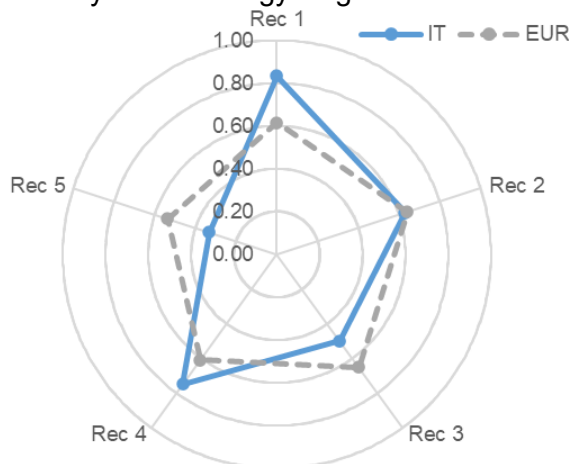


Figure 6 – Policy and Strategy – scores by recommendation

Italy shows a significant degree of alignment between the location strategy and the digital government strategy ([Recommendation 1](#)). This is the result of the policy efforts starting from the *Strategic Plan for Digital Growth*²⁰ that was brought to completion in 2020. In the same year, the third edition of the *Three-Year Plan for ICT in Public Administration*²¹ was published.

This edition represents the natural evolution of the two previous versions, where the ICT strategic model of public administration was introduced. The goal is the execution of the already planned actions, leveraging on common vocabularies and design references across national public administrations. These actions also include objectives and expected results focused on location data and information, such as:

²⁰ https://www.agid.gov.it/sites/default/files/repository_files/documentazione/strat_crescita_digit_3marzo_0.pdf

²¹ <https://docs.italia.it/italia/piano-triennale-ict/pianotriennale-ict-doc/it/2020-2022/index.html>

- the objective to strengthen data sharing and reuse between public administrations and with citizens and businesses:
 - expected results: increase in the number of national base registers accessible through APIs; increase in the number of dynamic open datasets in line with the Directive (EU) 2019/1024 (Open Data Directive); increase in the number of spatial data accessible through network services in line with the provisions of INSPIRE Directive;
- the objective to increase data and metadata quality:
 - expected results: a greater proportion of high-quality metadata published in the national catalogues and portals in conformance with the European and national standards.

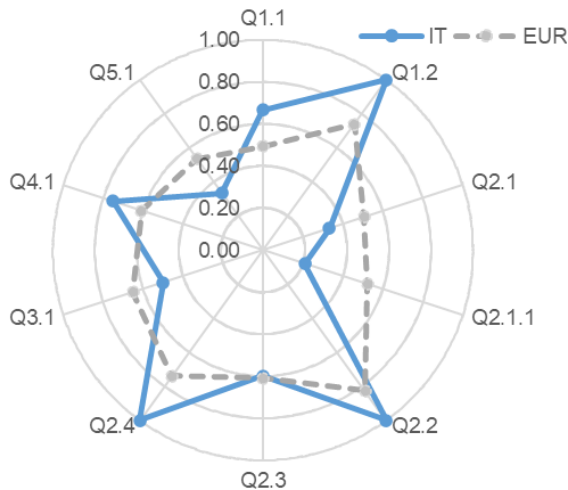


Figure 7 – Policy and Strategy Alignment – scores by indicator

Another strength under [Recommendation 1](#) is the general cross-sector legislation mandating the use of authoritative location datasets and services in digital government. The main reference documents are the already mentioned Three-Year Plan for ICT, the *National Guidelines for the enhancement of public information assets*²² and the *Guidelines for data and open data management*²³ defined under the coordination of the team in charge for the implementation of the Digital Agenda.

Italy is well positioned also under [Recommendation 4](#), as location-based evidence and analysis is used to help in developing policies and monitoring

outcomes in most relevant topics, such as the prevention and response to Covid-19²⁴ and OpenCoesione²⁵, the open government initiative on cohesion policies.

Most location data in Italy are available free of charge under an open licence with minimum restrictions ([Recommendation 2](#)). In this respect, some of the core location datasets are: administrative units, air quality, buildings, hydrography, population distribution and demography, protected sites, statistical units and transport networks. No datasets are reported as being available without restrictions.

The most common restrictions applied in access to high-value datasets are the prohibition of commercial use and of derivations, share-alike licensing and charges in some situations, based on volumes of data or types of access.

A considerable number of location reference datasets are made available as part of a broader core reference data policy. Some examples include the lists of up-to-date administrative units²⁶, statistical units²⁷, and the topographic database (including several layers such as transport networks, hydrography, buildings, etc.) made available by several Regions²⁸. The availability of such datasets is regulated by general policies and guidelines on sharing and reuse of core reference datasets that also refer to location information.

²² <https://docs.italia.it/italia/daf/lg-patrimonio-pubblico/it/bozza/index.html>

²³ https://www.ot11ot2.it/sites/default/files/linee_guida_e_protocolli/LGeP%20open%20data_0.pdf

²⁴ <https://opendatadpc.maps.arcgis.com/apps/opsdashboard/index.html#/b0c68bce2cce478eaac82fe38d4138b1>

²⁵ <https://opencoesione.gov.it/en/>

²⁶ <https://www.istat.it/it/archivio/222527>

²⁷ <https://www.istat.it/it/archivio/104317>

²⁸ <https://geoportale.regione.emilia-romagna.it/download/download-data?type=dbtopo> ,
<https://www.sitr.regione.sicilia.it/download/> , <http://rsdi.regione.basilicata.it/dbgt-ctr/> ,
<http://www.geoportale.regione.lombardia.it/download-ricerca>

Many location datasets are available under the same licensing conditions although no national licensing framework exists. A common licence (i.e. Creative Commons Attribution 4.0 International - CC-BY 4.0) is recommended for all public data, including location data²⁹.

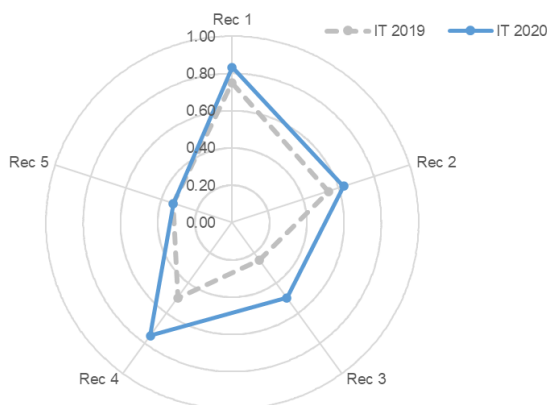
Overall, the results in [Recommendation 1](#) and [Recommendation 2](#) attest the measures taken by Italy in terms of alignment in the location and digital government strategies and of adopting national guidelines on the publication of Public Sector Information.

Only some organisations are aware of potential location data privacy issues and fully compliant with GDPR ([Recommendation 3](#)). However, certain complaints and cases³⁰ involving potential location data privacy concerns brought to the National Data Protection Authority may have set precedents on how to deal with similar issues.

Another opportunity for improvement in this focus area relates to the use of INSPIRE and related standards in the context of public procurement of location information and/or services ([Recommendation 5](#)). Currently, the public procurement documents on location information make only generic references to the INSPIRE Directive or other relevant standards without providing more specific details.

3.2.2 2019/2020 Comparison

[Figure 8](#) shows that, compared with the previous year, improvements in this focus area were mostly due to [Recommendations 3](#) and [Recommendation 4](#).



[Figure 8 – Policy and Strategy Alignment – 2019/2020 comparison](#)

Italy reported in 2020 that some organisations have become fully aware of and prepared for potential location data privacy issues ([Recommendation 3](#)). This compares with the previous year, where the country reported significant gaps in awareness and preparedness.

Progress under [Recommendation 4](#) is due to the extended use of location-based evidence and analysis to help develop relevant policies, now applied across applicable policy topics. This compares with 2019 when such use was limited only to some relevant policy topics.

Italy increased its score also under [Recommendation 1](#). The improvement in terms of alignment in the location strategy on digital government elements is linked with the change of measurement scale between the two years, which now represents the status more correctly. A point of strength has remained the use of authoritative location datasets and services mandated by general cross-sector legislation.

In 2020, Italy extended the array of location datasets available free of charge under an open licence without restrictions ([Recommendation 2](#)). The approach to licensing has remained the same both in 2019 and 2020, as many location datasets are still *de facto* available under the same licensing conditions but not as part of a national licensing framework.

²⁹ See: <https://docs.italia.it/italia/daf/lg-patrimonio-pubblico/it/bozza/licenzecosti.html#licenze>

³⁰ See e.g. <https://www.garanteprivacy.it/web/guest/home/docweb/-/docweb-display/docweb/9263597>

Italy's positioning under [Recommendation 5](#) is still the lowest of all recommendations in this focus area and does not show any progress, as the country still makes only some general reference to INSPIRE within the public sector procurement documents.

3.3. Digital Government Integration


| Vision | |
|---|---|
|  | Location is well integrated in digital government processing supporting G2G, G2B and G2C interactions, through location related services across government. Users do not have to supply the same mandatory information multiple times. There is visibility of common coordinating and support structures, expert groups and technologies, a strong user voice in the design, evaluation and improvement of location-based services, and good evidence of take-up of services. |
| Recommendation 6 | Identify where digital government services and processes can be modernised and simplified through the application of location-enabled services and implement improvement actions that create value for users, |
| Recommendation 7 | Use spatial data infrastructures (SDIs) in digital public services and data ecosystems across sectors, levels of government and borders, integrated with broader public data infrastructures and external data sources. |
| Recommendation 8 | Adopt an open and collaborative methodology to design and improve location-enabled digital public services. |
| Recommendation 9 | Adopt an integrated location-based approach in the collection and analysis of statistics on different topics and at different levels of government. |

Table 3 - Focus Area "Digital Government Integration" - vision and recommendations

3.3.1 2020 Results

The “Digital Government Integration” focus area index for Italy is 0.42, which is quite below the European average of 0.57. All four recommendation indexes are also below the respective European averages.

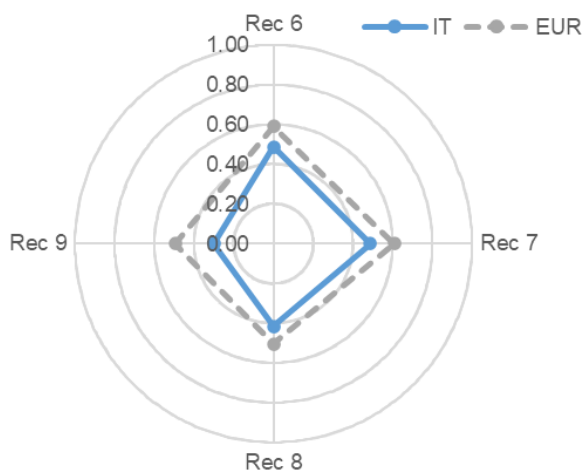


Figure 9 – Digital Government Integration – scores by recommendation

The scores for each recommendation in the “Digital Government Integration” focus area are shown in [Figure 9](#) and the underlying indicator scores for each recommendation are shown in [Figure 10](#). In both cases, the country scores are compared with the European averages.

Italy has taken some steps to improve the use of location information in digital public services ([Recommendation 6](#)). The sectors where location information currently plays the most significant role are: disaster management and civil protection, energy, environment, health, property and land administration and transport.

The use of location information in digital public services has been comprehensive in most cases, with some good examples of optimised use of location information. On the other hand, innovative use of location information through state-of-the-art solutions (e.g. AI, analysis of unstructured data etc.) has only been implemented or progressed in limited, specific cases to support process integration and service delivery.

The cases of comprehensive use of location information include:

- the COVID-19 dashboard that enables users to access information by presenting location-based analytics using intuitive and interactive data visualisations on a single screen, where the use and the contribution of location data are innovative;
- ARPAV – BATHING, an application containing information on the state of bathing for the Veneto coasts, Lake Garda and other water bodies in the region;
- “Muoversi in Lombardia”³¹, a solution that provides online timetables of public transportation;
- the Cadastral Cartography System, which provides automatic real-time update and dynamic online services;
- the PELL platform for public lighting³².

A case of innovative use of location information in digital services can be seen in RADAR-DPC³³ (Disaster Management and Civil Protection sector), a service providing information on ongoing meteorological phenomena and used by the Civil Protection Department.

[Recommendation 7](#) shows areas for improvement regarding the use of the SDI and INSPIRE conformant datasets in delivering digital public services. Currently, the SDI is used only in some cases for delivering digital public services across government, whereas INSPIRE conformant datasets and services are very rarely used in digital public services.

One example of a service using INSPIRE conformant data is provided by the Revenue Agency³⁴ that supports enquires on the fees declared in the deeds of sale stipulated as of 1 January 2019 and relating to geo-referenced properties in defined territorial areas. The service enables users to access the cadastral and land registry databases to obtain information on properties and to get the pertinent map with the land parcel, the plan of the property and the mortgage status.

The SDI and INSPIRE conformant datasets and services are also used in some cases in delivering cross-border digital public services where the country is involved. One example is the cross-border initiative “Harmo-Data”³⁵ where INSPIRE is the common reference standard for data harmonisation.

In most of the sectors where location information is used with a certain degree of optimisation, a hybrid SDI approach is used (i.e. jointly exploiting sector and national SDIs). The main SDIs used in these sectors are:

- disaster management and civil protection: INSPIRE, national and sector SDI, for area management / restricted / regulated zones and reporting units and natural risk zones;
- energy: there exists for public lighting the ad hoc specifications of the PELL (Public Energy Living Lab) platform by the National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), as well as national SDI specifications;
- environment: INSPIRE and National SDI on EIA / SIA (Environmental Impact Assessment / Studi di Impatto Ambientale), protected sites, habitats and biotopes, environmental monitoring facilities;
- health: Sector SDI and national SDI;
- transport: INSPIRE and national SDI.

Finally, the public sector SDI is used by the private sector and other organisations (e.g. NGOs) for the delivery of new and innovative applications, products and services in several good examples. Some of those examples are the apps:

³¹ <http://www.muoversi.regione.lombardia.it/planner/>

³² <https://www.pell.enea.it/illuminazione-pubblica>; see best practice IT6

³³ <https://mappe.protezionecivile.gov.it/it/mappe-rischi/piattaforma-radar>

³⁴ <https://www.agenziaentrate.gov.it/portale/web/guest/schede/fabbricatiterreni/omi/consultazione-valori-immobiliari-dichiarati-cittadini>

³⁵ <http://www.harmo-data-geoportal.eu>

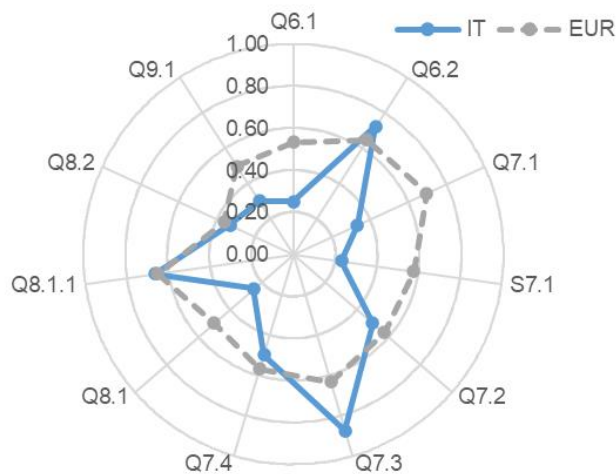


Figure 10 - Digital Government Integration – scores by indicator

- “PGT Online”³⁶ is a service built in cooperation between the provinces of Milan and Monza and the local associations of architects and builders, enabling online examination of the cartographic drawings of the georeferenced Territorial Governance Plans (PGT) based on the cartography of Google Maps; its most innovative feature is the quality of the images of the plans for the different tables, especially at a smaller scale, obtained by integrating the mapping services that the geoportal of the Municipality of Milan has made available. The plan contents can now be queried with a click on the map, making it less necessary to read the legend, which is still present in its table format;

- “Citymapper”³⁷ is an application that instantly compares travel options in real time for all modes of transport including public transport, bike (both private and rented) and scooter, as well as walking options; the underlying data is pulled from a variety of sources, including open data (as GTFS files provided by transport authorities); it is currently active in Rome, Milan and Genoa.

Regarding [Recommendation 8](#), an open and collaborative methodology is adopted to design and improve location-enabled digital public services (through specific initiatives such as consultations, user groups, feedback requests and iterative development) only in limited specific initiatives. When adopted, this collaborative approach is applied both at national and sub-national level. The involvement of external parties in developing or delivering location-based digital public services is obtained in three ways:

- establishing public/private partnerships;
- public authorities collecting location data and then making them openly available for external parties to develop their products and services (as an example of this practice, the Lombardy Region collects and publishes in an open data portal all the cases of open data re-use, including those using location information³⁸);
- public authorities using location data from external parties.

Italy has implemented a relatively limited array of actions for the integration of location and statistical information ([Recommendation 9](#)) in the production of location-based statistics, namely:

- an accurate and up-to-date knowledge base of where citizens and businesses are located;
- a common geospatial reference framework for statistics to enable timely, accurate and efficient production of location-based statistics;
- collection of census data based on the location reference framework for statistics.

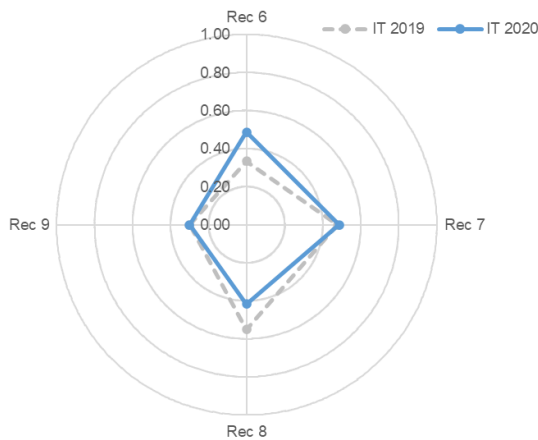
³⁶ <http://www.pim.mi.it/pgtonline/>

³⁷ <https://play.google.com/store/apps/details?hl=it&id=com.citymapper.app.release>

³⁸ <https://www.dati.lombardia.it/Government/Utilizzo-dei-dataset/m58v-fh6e/data>

3.3.2 2019/2020 Comparison

Italy is better positioned in 2020 than in 2019 ([Figure 11](#)) due to further exploiting location information to improve some digital public services ([Recommendation 6](#)). This has brought the



[Figure 11 - Digital Government Integration – 2019/2020 comparison](#)

recommendation index closer to the European averages. The scores on [Recommendation 8](#) have decreased in line with the European average due to a change of scale of an indicator. Indexes for [Recommendation 7](#) and [Recommendation 9](#) have remained the same. While for [Recommendation 7](#) this has brought to the same gap as in 2019 against the European average, which has not changed either, for [Recommendation 9](#) the European average has been higher in 2020 than in the previous year, thus widening the gap with Italy's results.

The improved score obtained under [Recommendation 6](#) is due to the higher number of key digital public services reported as using location information in a comprehensive or innovative way, compared with 2019. Key sectors showing improvement are disaster management and property and land administration.

The results in [Recommendation 7](#) confirm those of 2019. Both in 2019 and 2020, the private sector and other organisations (e.g. NGOs) in some cases, used the public sector SDI for delivery of – new and innovative – applications, products and services. Additionally, in both years the spatial data infrastructure (SDI) has been actively exploited for delivering some cross-border digital public services.

Under [Recommendation 8](#), in some limited cases Italy continues to apply an open and collaborative methodology to design and improve location-enabled digital public services. The lower score is due to the change of scale in one of the indicators under this recommendation, which now gives a more realistic representation of the improvements required in collaborative practices.

Finally, there has been no change between 2019 and 2020 in [Recommendation 9](#), with Italy implementing the same limited range of actions for the integration of location and statistical information in the production of location-based statistics.

3.4. Standardisation and Reuse


| Vision | |
|---|---|
|  | Core data has been defined and a funding model has been agreed for its ongoing maintenance and availability. Consistent use of geospatial and location-based standards and technologies, enabling interoperability and reuse, and integration with broader ICT standards and technologies, including the standards and solutions promoted by the ISA ² programme. Use of these standards in all areas related to the publication and use of location information in digital public services, including metadata, discovery, view, exchange, visualisation etc. |
| Recommendation 10 | Adopt a common architecture to develop digital government solutions, facilitating the integration of geospatial requirements. |
| Recommendation 11 | Reuse existing authentic data, data services and relevant technical solutions where possible. |
| Recommendation 12 | Apply relevant standards to develop a comprehensive approach for spatial data modelling, sharing, and exchange to facilitate integration in digital public services. |
| Recommendation 13 | Manage location data quality by linking it to policy and organisational objectives, assigning accountability to business and operational users and applying a “fit for purpose” approach. |

Table 4 - Focus Area “Standardisation and Reuse” - vision and recommendations

3.4.1 2020 Results

The scores for each recommendation in the “Standardisation and Reuse” focus area are shown in [Figure 12](#) and the underlying indicator scores for each recommendation are shown in [Figure 13](#). In both cases, the country scores are compared with the European averages.

The “Standardisation and Reuse” focus area index for Italy is 0.52, almost in line with the European average of 0.55. [Recommendation 11](#), [Recommendation 12](#) and [Recommendation 13](#) are aligned with or even above the European average. The widest margins for improvement mostly concern the architectural aspect of the SDI ([Recommendation 10](#)).

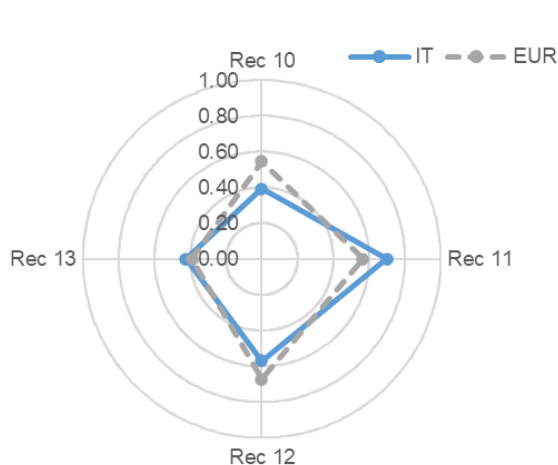


Figure 12 – Standardisation and Reuse – scores by recommendation

The relatively low positioning of Italy on [Recommendation 10](#) is due to the fact that the country has neither adopted a common architectural approach for location data and services nor a systematic discovery and incorporation of new technological features or emerging technologies. This does not facilitate the integration of geospatial information.

Italy has a considerable range of high-value location datasets that are accessible using APIs, namely: administrative units, air quality, cadastral parcels, population distribution and demography, protected sites, statistical units, transport networks and timetables.

Several steps are taken to stimulate the take-up of APIs to ensure that they are as useful as possible, such as:

- APIs are documented in open specifications (through OpenAPI specifications);

- best practices of API design are used (e.g. REST APIs);
- APIs provide access to updates of both static (slow-moving) and dynamic (fast-moving) data;
- APIs are discoverable in both public sector catalogues/portals and external catalogues (a number of high value location dataset APIs are documented in a dedicated catalogue³⁹).

The score for [Recommendation 11](#) is significantly higher than the European average, due to the reuse in the SDI of national generic ICT solutions and of generic ICT solutions from other national or international catalogues. ISA² solutions have also been implemented in Italy. Good examples are the use of GeoDCAT-AP specifications and GeoDCAT-AP API and their adaptations and extensions at the national level, together with the publication of national guidelines for the implementation of GeoDCAT-AP⁴⁰ and the Italian RNDT GeoDCAT-AP API⁴¹. These solutions are used to implement specific actions defined in the Three Year ICT Plan concerning the integration and coordination of the catalogue for spatial data and the open data portal.

Italian public administrations have also implemented several registers of location information to facilitate their reuse. These include: geographical names, glossary, code lists, Italian public administrations discovery services, reference data sets, spatial objects for public lighting, types of the thoroughfare and topographical spatial objects. Many of these registers are published in the INSPIRE Italia Registry⁴². The Registry is maintained under the coordination of AgID, ISPRA and MATTM for the implementation of the INSPIRE Directive in Italy.

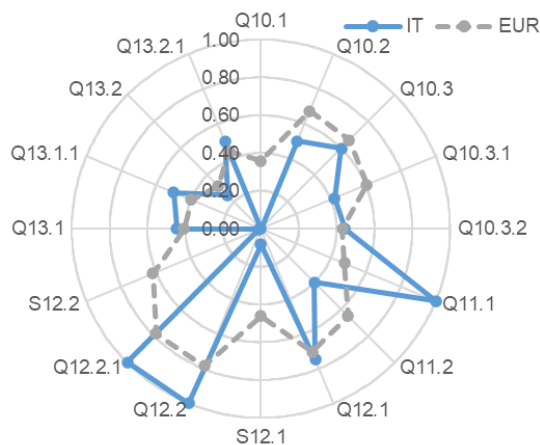


Figure 13– Standardisation and Reuse – scores by indicator

While the outcomes of several actions taken under this recommendation are positive, there is still a wide potential for improvement regarding reuse of solutions of different origin, and there are many datasets that should be organised and published in authentic registers.

Italy obtained good results under [Recommendation 12](#) due to the extensive use of relevant standards and of specifications to combine spatial and non-geospatial metadata to facilitate data discoverability. Several types of geospatial standards are used to develop a comprehensive approach for spatial data modelling, sharing, and exchange to facilitate integration in digital public services. These

include international standards, adaptations of international standards (e.g. INSPIRE) and stand-alone domestic standards, such as:

- ISO 19115 - TS 19139 (Geographic Information – Metadata);
- OGC CSW, WMS, WFS, WCS - standards for web services;
- INSPIRE technical guidelines for metadata, spatial data services, network services, data specifications;
- national technical specifications⁴³.

³⁹ <https://developers.italia.it/it/api>

⁴⁰ <https://geodati.gov.it/geoportale/documenti/12-documenti/277-linee-guida-nazionali-geodcat-ap>

⁴¹ https://geodati.gov.it/geodcat-ap_it/ and <https://github.com/AgID/rndt-geodcat-ap-api>

⁴² <https://registry.geodati.gov.it>

⁴³ <https://geodati.gov.it/geoportale/datiterritoriali/regole-tecniche>

Moreover, a standardised metadata approach has been adopted to facilitate the discoverability of spatial and non-spatial data through joint access mechanisms.

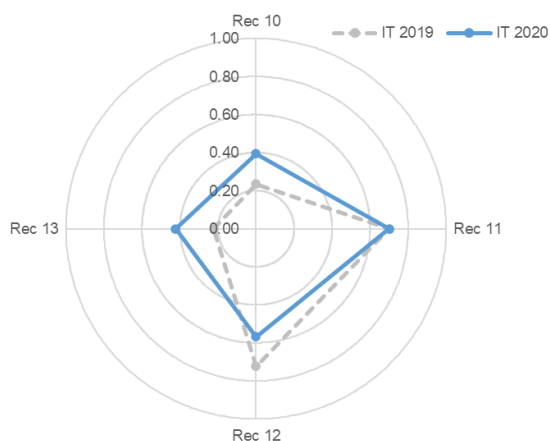
Lastly, the quality of location data ([Recommendation 13](#)) is ensured at the design level, by linking data quality standards to data standards through the:

- inclusion of the different dimensions of data quality in the standard (such as timeliness, accuracy, completeness, integrity, consistency, compliance to specifications/standards/legislation);
- inclusion of multilingualism in the data quality standard and the definition of national guidelines on data quality based on ISO Standard 25012.

Currently, no specific actions are taken to measure data quality, although feedback mechanisms are in place.

Italy is taking action to target specific implementation features rather than organisational and process design aspects of location data quality governance. These actions include a regular data quality bulletin to encourage improvement in data quality management and collection of feedback from users to report problems and help improve data quality. This feedback is collected through a collaborative platform, enabling stakeholders to help improve the SDI, a community/discussion forum and through traffic statistics.

3.4.2 2019/2020 Comparison



[Figure 14 – Standardisation and Reuse – 2019/2020 comparison](#)

Significant improvements have been made across the recommendations that were Italy's weakest points in 2019.

Compared with the previous year, as shown in [Figure 14](#), the highest increase in the score has concerned [Recommendation 13](#). Here, Italy reported putting in place a wider range of actions related to location data quality governance in 2020 compared with 2019. This now includes the creation of a regular data quality bulletin and exploiting feedback collected from users.

Italy also increased its score for [Recommendation 10](#) due to using APIs for INSPIRE / SDI datasets. In 2019, the use of

APIs for location datasets was still in a planning and testing phase, while in 2020 Italy started to develop, document and make a series of location data APIs accessible.

Under [Recommendation 11](#), Italy retained its good status as in 2019. The country still has in place the same number of location registers. Moreover, concerning the reuse of generic ICT solutions in the SDI, the country now also reuses national generic ICT solutions and generic ICT solutions from other national or international catalogues. This improvement is however not reflected in a higher score, due to the adoption of a different scale for the corresponding indicator.

The lower score for [Recommendation 12](#) is partly due to the combination of the lower number of conformant metadata (as only the conformance to the latest version of the Technical Guidelines is considered in 2020) and the lower percentage of conformant INSPIRE datasets and network services, partly related to the new or modified indicators. The changes made now represent more realistically Italy's location interoperability maturity under the standardisation aspect.

3.5. Return on Investment

| Vision | |
|---|---|
|  | There is a strategic approach to national and European funding, procurement, and delivery of location information and location-based services to minimise costs and maximise benefits for government, businesses and citizens, recognising best practices, and building on INSPIRE and standardisation tools. The funding and sourcing model for collection and distribution of core location data takes into account user needs from different sectors and the strategic importance of continued supply of data at a suitable quality. Procurement recognises INSPIRE and other standardisation tools in a meaningful way. There are compelling impact assessments and business cases, a rigorous approach to targeting and tracking benefits, and good evidence that benefits are being achieved. |
| Recommendation 14 | Apply a consistent and systematic approach to monitoring the performance of location-based services. |
| Recommendation 15 | Communicate the benefits of integrating and using location information in digital public services. |
| Recommendation 16 | Facilitate the use of public administrations' location data by non-governmental actors to stimulate innovation in products and services and enable job creation and growth. |

Table 5 - Focus Area "Return on Investment" - vision and recommendations

3.5.1 2020 Results

The scores for each recommendation in the "Return on Investment" focus area are shown in [Figure 15](#) and the underlying indicator scores for each recommendation are shown in [Figure 16](#). In both cases, the country scores are compared with the European averages. The "Return on Investment" focus area index for Italy is 0.51, slightly below the European average of 0.58.

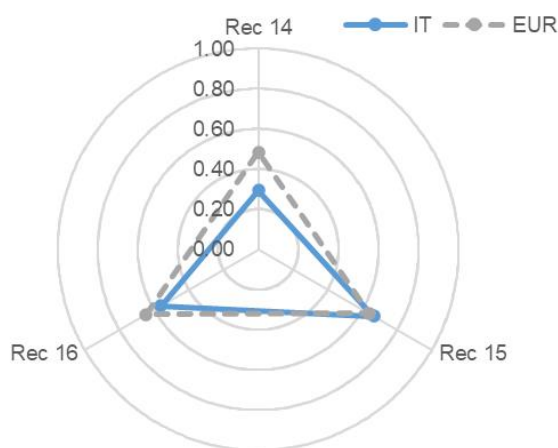


Figure 15 - Return on Investment – scores by recommendation

Italy scores below the European average with regard to the performance monitoring of location-based services ([Recommendation 14](#)) and to the limited exploitation of public location data by non-governmental organisations ([Recommendation 16](#)). This is partially offset by the strengths displayed in terms of communication approaches, as addressed by [Recommendation 15](#).

Italy measures the efficiency and effectiveness of location-based services at the level of single projects or services, rather than at the level of each organisation or at the national level ([Recommendation 14](#)).

The elements used for such measurement are reusability, availability, responsiveness, reduction in administrative burdens, simplification of administrative processes and user-centricity. However, elements such as return on investment, cost of ownership, risks, user satisfaction and other factors typically used to evaluate the performance of a (digital) service are not yet considered.

Impact-based improvement in location-enabled processes and services is considered under only one dimension, namely the identification and monitoring of the benefits of location information.

To communicate properly the benefits of integrating and using location information in digital public services ([Recommendation 15](#)), Italy has organised many events including webinars about digital innovation, conferences, meetings, news articles published on the RNDT portal and in many websites of dedicated magazines. The main conferences in the GI field, including the communication of use cases and benefits evidence of location information, are the ASITA Conference, the Foss4G-IT and the ESRI Italy Conference. All these initiatives are raising awareness and understanding on the availability and benefits of location data and location-enabled digital public services.

Italy has implemented a considerable number of measures to stimulate innovation in products and services by making the process of searching, finding and accessing location data and web services as easy as possible for companies, research institutions, citizens and other interested parties ([Recommendation 16](#)). These measures include:

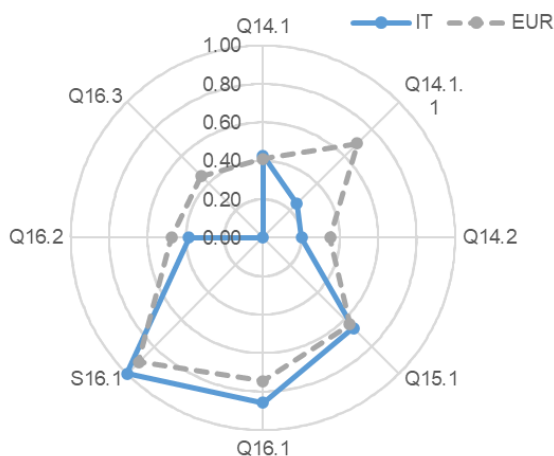


Figure 16 - Return on Investment – scores by indicator

- national open data portal merging location data and non-location data;
- national discovery (geo)portal integrating INSPIRE and non-INSPIRE data;
- geoportal harvested by the European Data Portal;
- thematic portals complementing general search facilities with “specialist” search;
- websites with an exposition of data;
- availability of spatial data sets on web search engines.

The following actions are implemented to support private, non-profit and academic actors in the development of new products, services or research using public sector

location data:

- open data policy;
- promoting access to open data through hackathons;
- 'Innovation labs' or 'Innovation hubs';
- government sponsorship of 'innovation' pilot projects, potentially with grants/funding;
- training in necessary skills to exploit the SDI.

In Italy, consideration of non-government actors' requirements in the development of services using public data is still limited. The following are examples highlighting some limitations in that respect:

- non-government actors are not yet included in the governance framework for public location data;
- communities do not engage such actors in sharing and reusing this data;
- the requirements of non-government stakeholders are not collected for further developments of the SDI.
- there is no strategic approach to funding public sector location reference data.

3.5.2 2019/2020 Comparison

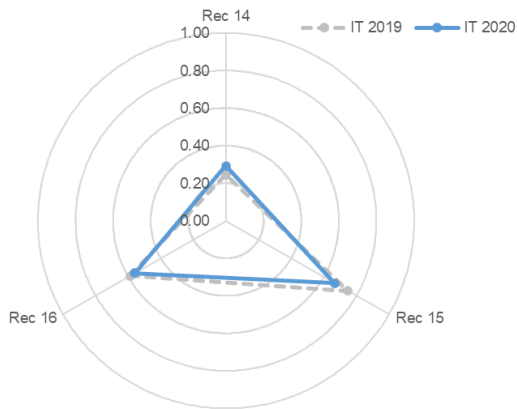


Figure 17 – Return on Investment – 2019/2020 comparison

Compared with 2019, Italy has reached quite a similar positioning under all three recommendations in 2020, as shown in [Figure 17](#). The differences over the two years are marginal, consisting in a slightly higher result under [Recommendation 14](#), a lower result under [Recommendation 15](#) and an unchanged result under [Recommendation 16](#).

Under [Recommendation 14](#), Italy now additionally considers availability and responsiveness to assess the efficiency and effectiveness of location-based services. For all the other indicators, the small fluctuations in results are due to the effect of

some minor changes of scale of the corresponding indicator.

The slightly different score under [Recommendation 15](#) is also because of a change in the scale of the corresponding indicator.

3.6. Governance, Partnerships and Capabilities


| Vision | |
|---|--|
|  | <p>There is high level support for a strategic approach to the funding and availability of location information at Member State and EU level, based on INSPIRE and other tools to achieve interoperability. Effective governance, partnerships, work programmes, responsibilities and capabilities to progress such an approach have been established, taking into account the needs and expectations of stakeholders at Member State and EU level. Governments recognise the importance of 'location' understanding and skills and invest in awareness raising, training and resourcing. Service design takes account of user capabilities. Specialists form communities to share knowledge and develop new ideas related to location information. As a result, there is a sufficient level of understanding and skills to develop, deploy and use effective location-based services.</p> |
| Recommendation 17 | Introduce integrated governance of location information processes at all levels of government, bringing together different governmental and non-governmental actors around a common goal- |
| Recommendation 18 | Partner effectively to ensure the successful development and exploitation of Spatial Data Infrastructures. |
| Recommendation 19 | Invest in communications and skills programmes to ensure sufficient awareness and capabilities promote improvements in the use of location information in digital public services and support growth opportunities. |

Table 6 - Focus Area "Governance, Partnerships and Capabilities" - vision and recommendations

3.6.1 2020 Results

Scores for each recommendation in the "Governance, Partnerships and Capabilities" focus area are shown in [Figure 18](#) and the underlying indicator scores for each recommendation are shown in [Figure 19](#). In both cases, the country scores are compared with the European averages.

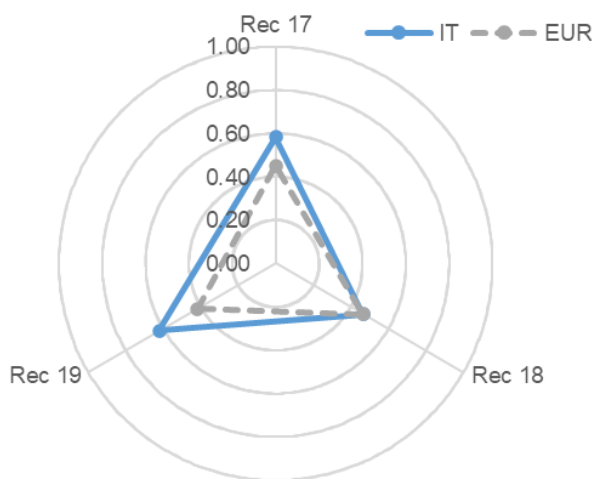


Figure 18 - Governance, Partnerships and Capabilities - scores by recommendation

The "Governance, Partnerships and Capabilities" focus area index for Italy is 0.56, noticeably higher than the European average of 0.45. All three recommendation scores are above the European average. One of the reasons for Italy's good performance is that stakeholders from different communities, domains, administrative levels and sectors are involved in the decision-making process on the role of location information in Digital Government through public consultations, such as the "PartecipaPA⁴⁴" platform. Public consultations are held on technical guidelines according to art. 71 of the Digital Administration Code⁴⁵. Regular meetings are also organised between

⁴⁴ PartecipaPA (<https://partecipa.gov.it>) is a platform of the Italian Government for public consultation and participation processes

⁴⁵ [Codice dell'amministrazione digitale | Art. 71. Regole tecniche \(italia.it\)](#)

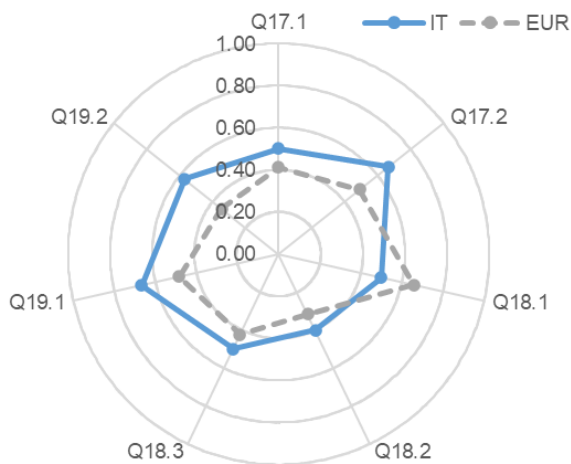
the Italian Revenue Agency and Professional Orders to agree on the rules for updating cartographic and census databases.

There is a strongly integrated joint leadership and coordination on actions and policies related to the role of the SDI in Digital Government ([Recommendation 17](#)). This facilitates cross-fertilisation of ideas and initiatives between members of governance bodies. The organisations involved in this are:

- location information governance bodies, i.e. the National Committee for Spatial and Environmental Information⁴⁶, the Ministry for Environment and the Institute for Environmental Protection and Research⁴⁷;
- digital government bodies, i.e. the Ministry for Technological Innovation and Digitisation and the Agency for Digital Italy.

In Italy, partnerships or formal agreements to finance, build and operate digital public services using location data (between public authorities in the country, with public authorities in other countries and public-private partnerships) cover only a limited number of services ([Recommendation 18](#)). This is negatively affecting the successful development and exploitation of spatial data infrastructures. Examples exist, however, such as the cross-border agreement for the partnership between Friuli-Venezia Giulia (Italian region) and Slovenia for the project "Improved rail connections and smart mobility in Central Europe". The project, promoted and coordinated by the Central European Initiative (Lead partner), involves thirteen partners from seven countries (Italy, Austria, Slovenia, Croatia, Hungary, Czech Republic and Germany) and has the objective of improving cross-border and local rail public transport connections, through the study of cross-border rail service contracts, the development of pilot services, fare integration, info mobility and testing of electronic ticketing systems.⁴⁸

Many initiatives have been organised to ensure sufficient awareness and develop geospatial skills ([Recommendation 19](#)). These include:



- spatial literacy awareness-raising for non-specialists, e.g. policy makers, legal advisers, project managers;
- training for specialists, e.g. developers or data analysts;
- public or cross-government events specialising in location information / GI topics;
- structured training programmes to obtain accreditation under a competency framework;
- INSPIRE training modules;
- online self-learning tools;
- national guidelines on digital skills.

[Figure 19 - Governance, Partnerships and Capabilities—scores by indicator](#)

Certain organisations have also undertaken training and awareness-raising on geospatial skills as part of a recognised geospatial competency framework. This framework is based on a

⁴⁶ <http://www.pcn.minambiente.it/mattm/inspire-la-consulta-nazionale-per-linformazione-territoriale-ed-ambientale/>

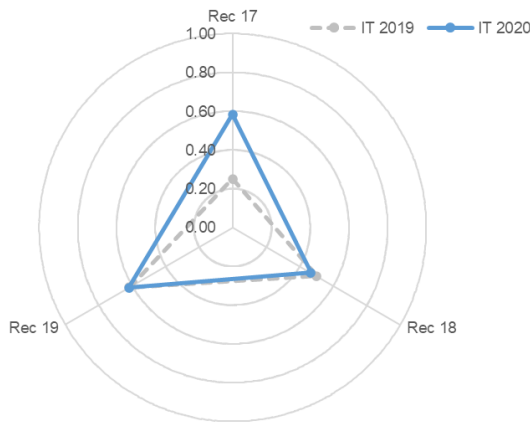
⁴⁷ <https://www.isprambiente.gov.it>

⁴⁸ Cross border ticket SLO-ITA in the context of CONNECT2CE EU project <https://www.regione.fvg.it/rafvfg/cms/RAFVG/infrastrutture-lavori-pubblici/infrastrutture-logistica-trasporti> project (<https://www.ita-slo.eu/it/harmo-data>), harmonisation of data for cross-border land management.

national standard extending the European e-Competence Framework 3.0 (EN 16234-1) principles.⁴⁹

3.6.2 2019/2020 Comparison

[Figure 20](#) highlights the main change between 2019 and 2020, which is the significant improvement under [Recommendation 17](#).



[Figure 20 - Governance, Partnerships and Capabilities - 2019/2020 comparison](#)

The country reports considerable involvement of relevant communities (location and digital government), domains (thematic), administrative levels (central and local) and sectors (public, private, academic, society) in the decision-making process on the role of location information in Digital Government. This compares to the existence of generic governance and decision-making mechanisms (e.g. public consultation) reported in 2019. Organisations responsible respectively for SDI and Digital Government coordination have confirmed the strongly integrated collaboration and coordination on actions

and policies related to the role of the SDI in Digital Government.

In 2020 Italy has not shown any particular progress on formal agreements signed between Italian public authorities or with public authorities of other countries or with the private sector ([Recommendation 18](#)). In three cases, Italy has confirmed the existence of a limited number of services to finance, build and operate cross-border location data. However, the final score has slightly decreased mainly due to a change in the scale of the pertinent indicators.

Compared with 2019, the strategic approach to leverage the skills for innovative geospatial solutions has passed from being a technical norm extending the standard on European e-Competence Framework 3.0 (EN 16234-1) to an organic approach undertaken by organisations as part of a recognised geospatial competency framework ([Recommendation 19](#)). Additionally, in 2020 Italy has implemented some new initiatives to raise awareness and develop geospatial skills; however, the final score has remained the same due to a change in the unit of measure of the pertinent indicators.

⁴⁹ See best practice [IT5](#)

4. Best Practices

| Best Practice IT1 | Actions addressing location interoperability in the Three-Year ICT Plan |
|--|---|
| Policy domain: ICT | |
| Process owner: Italian Government | |
| <p>Short description: The ICT Plan is a strategic and economic policy document for all Public Administrations that oversees the digital transformation of the country, based on the Strategy for digital growth 2014-2020 aligned with the European Digital Agenda. A section of the Plan is dedicated to the policy on public data considered one of the main digital assets, whose enhancement is a strategic goal to reach. In particular, two macro-areas are identified, base registers and open data, to which the creation of controlled vocabularies and data models are related. In this context, the Plan includes some actions addressing location interoperability.</p> <p>Although the ICT Plan does not specifically concern location information, except for the specific actions mentioned above, it does however represent the interoperability background and framework. These provisions should also be applied in the location field to foster the use and integration of location information in digital public services. Finally, the ICT Plan represents a good practice in designing an overall framework and defining a strategic document encompassing digital and location policies.</p> | |
| Recommendation: Policy and Strategy Alignment (1) | |
| Link: https://pianotriennale-ict.italia.it | |
| Best Practice IT2 | Extending INSPIRE data specifications for use beyond environmental policy |
| Policy domain: Energy, Telecommunications | |
| Process owner: Agenzia per l'Italia Digitale (AgID) and several Public Administrations | |
| <p>Short description: New thematic data models have been defined consistent with the national and European reference specifications, i.e. the relevant INSPIRE data specifications and the national rules on the geo-topographic database (DBGT), the reference data model including the main base spatial layers and objects being harmonised to INSPIRE. Two examples are:</p> <ol style="list-style-type: none"> i) the data model for the physical infrastructures information system which allows access to information related to the implementation of the EU Directive 2014/61/EU on measures to reduce the cost of deploying high-speed electronic communications networks; ii) the data model defined for the PELL (Public Energy Living Lab) project aimed at implementing a digital platform for public lighting. The PELL project is used as a showcase in the ELISE Energy & Location Applications project within the ISA² Programme, through a collaboration between JRC, ENEA (the organisation responsible for the PELL project) and AgID. This provides a European perspective on the benefits of using digital platforms for the smart management of public lighting infrastructures. | |
| Recommendation: Digital Government Integration (7) | |
| Link: https://geodati.gov.it/geoportale/datiterritoriali/regole-tecniche | |

Best Practice IT3 Implementation of GeoDCAT-AP specification

Policy domain: Geospatial

Process owners: Agency for Digital Italy (AgID)

Short description: GeoDCAT-AP is an extension of DCAT-AP (Data Catalog Application Profile) for describing geospatial datasets, dataset series, and services. It provides an RDF syntax binding for the metadata elements defined in the core profile of ISO 19115:2003 and those defined in the framework of the INSPIRE Directive. Its basic use case is to make spatial datasets, data series, and services searchable on general data portals, thereby improving discoverability of geospatial information across borders and sectors. The GeoDCAT-AP specification has been defined in the context of the ISA² programme and Communications Networks, Content & Technology (CONNECT) of the European Commission.

Actions in Italy have been:

- i) definition of national guidelines based on the European specification;
- ii) implementation of these guidelines and development of the tools needed for their implementation;
- iii) full engagement of the Italian organisations managing local catalogues by June 2020.

The tools developed include the XSLT script extended (to take into account the extensions introduced in the national metadata profiles) and the GeoDCAT-AP IT API reusing and extending the API developed under the ISA² Programme. Those tools are used for the integration and coordination of the catalogue for spatial data and open data portal in order to enable and provide access to spatial data in both catalogues and make open spatial data available to a wider and diversified audience, beyond the geospatial domain.

Recommendations: [Standardisation and Reuse \(12\)](#)

Link: <https://geodati.gov.it/geoportale/documenti/12-documenti/277-linee-guida-nazionali-geodcat-ap>https://geodati.gov.it/geodcat-ap_it

Best Practice IT4 INSPIRE Italia Registry

Policy domain: Geospatial

Process owner(s): Agency for Digital Italy, Minister of Environment, Superior Institute for Environmental Protection and Research

Short description: The INSPIRE Italia Registry provides a central access point for a number of nationally managed registers, both in order to comply with INSPIRE requirements regarding the publication of extensions to the code lists set out in Regulation (EU) No. 1089/2010 on interoperability of spatial data sets and services and for identified and nationally defined purposes in the e-Government context.

Recommendations: [Standardisation and Reuse \(12\)](#)

Link: <https://registry.geodati.gov.it>

Best Practice IT5 Standardised Geographic Information professional profiles**Policy domain:** Geospatial**Process owner(s):** UNI (Italian Standardisation Body)**Short description:**

This technical standard defines the requirements related to GI professional activities carried out in different organisational contexts, public and private. These requirements are detailed, starting from identified tasks and professional activities, in terms of knowledge, skills and ability, in accordance with the European Qualifications Framework (EQF) and stated in such a way as to support learning outcomes assessment and endorsement.

The technical standard (the first of its type in Europe) is part of the European Framework of Reference and Definition of Competences and Related Competences in accordance with UNI EN 16234-1 (e-Competence Framework) and UNI 11506 (Non- Regulated Professional Activities – Professional profiles in ICT) and follows the methodology for creating third-generation profiles (UNI 11621-1).

A short description of the GI professional profiles is included both in the [Guidelines on digital skills](#) and in the [dedicated register](#) published in the INSPIRE Italia Registry.

Recommendations: [Governance, Partnerships and Capabilities \(19\)](#)**Link:** <http://store.uni.com/catalogo/index.php/uni-11621-5-2018.html>**Best Practice IT6 PELL Public lighting platform****Policy domain:** Energy**Process owner:** National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)

Short description: Digital platform for the structured and harmonised collection of the georeferenced identity data for public lighting in each Italian Municipality implemented under the PELL project. The project involves reorganising and modernising the management processes and the entire decision support system for public lighting. The platform will also enable the provision of services based on public lighting infrastructures (e.g., Wi-Fi hot spots, cameras).

The PELL project has been used as a showcase in the ELISE Energy & Location Applications project and was the subject of an ELISE webinar “Digital platform for the smart management of infrastructures - the public lighting case” (see <https://joinup.ec.europa.eu/node/704403>).

Recommendation: [Digital Government Integration \(6, 7\)](#)**Link:** <https://www.pell.enea.it/la-piattaforma>

List of abbreviations and definitions

Abbreviations

| Abbreviation | Meaning |
|------------------|--|
| AgID | Agenzia per l'Italia Digitale (Italy Digital Agency) |
| AI | Artificial Intelligence |
| API | Application Programming Interface |
| ASITA | Federazione delle Associazioni Scientifiche per le Informazioni Territoriali e Ambientali (Federation of Scientific Associations for Spatial and Environmental Information) |
| CEI | Comitato Elettrotecnico Italiano (Italian Electrotechnical Committee) |
| CSW | Catalogue Service – Web |
| DBGT | Database Geo-Topografico (Geo-Topographic Data Base) |
| DCAT-AP | Data Catalogue vocabulary – Application Profile |
| EIA | Environmental Impact Assessment |
| EIF | European Interoperability Framework |
| ELISE | European Location Interoperability Solutions for e-Government |
| ENEA | Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (National Agency for New Technologies, Energy and Sustainable Economic Development) |
| EULF | European Union Location Framework |
| ESRI | Environmental Systems Research Institute |
| Foss4G | Free and Open Source Software for Geospatial |
| GDPR | General Data Protection Regulation |
| GI | Geographic Information |
| GTFS | General Transit Feed Specification |
| G2B | Government to Business |
| G2C | Government to Citizen |
| G2G | Government to Government |
| ICT | Information and Communication Technology |
| INSPIRE | Infrastructure for Spatial Information in the European Community |
| ISA ² | Interoperability Solutions for European Public Administrations, Businesses and Citizens Programme |
| ISO | International Standard Organisation |
| ISPRA | Istituto Superiore per la Protezione e la Ricerca Ambientale |
| LIFO | Location Interoperability Framework Observatory |
| MATTM | Ministry for Environment, Land and Sea Protection |
| NGO | Non-Governmental Organisation |
| NIFO | National Interoperability Framework Observatory |
| NMA | National Mapping Agency |
| OGC | Open Geospatial Consortium |
| PELL | Public Energy Living Lab |
| PGT | Piano di Governo del Territorio (Territorial Governance Plan) |
| REST | Representational state transfer |
| RNDT | Repertorio Nazionale Dati Territoriali (National Catalogue for Spatial Data) |
| SDI | Spatial Data Infrastructure |
| SIA | Studio di Impatto Ambientale (Environmental Impact Assessment) |
| UNI | Ente nazionale italiano di unificazione (National Italian Agency for Unification) |
| WCS | Web Coverage Service |
| WFS | Web Feature Service |
| WMS | Web Map Service |

Definitions

| Term | Meaning | Link |
|--|---|---|
| Application Programming Interface (API) | A set of functions and procedures that allow the creation of applications which access the features or data of an operating system, application, or other service. | Application Programming Interface Joinup (europa.eu) |
| Authentic data | Data that provides an accurate representation of reality with quality parameters that are fit for the intended purposes. | Authentic data Joinup (europa.eu) |
| Authoritative data | Data from officially regarded sources. A subset of spatial data may be described as 'authoritative data', where it has legal value because it is defined by a competent authority. | Authoritative data Joinup (europa.eu) |
| Core location dataset / High value dataset | Open Data Directive introduces the concept of 'high-value datasets' as datasets holding the potential to (i) generate significant socio-economic or environmental benefits and innovative services, (ii) benefit a high number of users, in particular SMEs, (iii) assist in generating revenues, and (iv) be combined with other datasets. Given this, the Directive requires that such datasets are available free of charge, are provided via Application Programming Interfaces (APIs) and as a bulk download, where relevant, and are machine-readable. The Directive does not include the specific list of high-value datasets—which is expected in the future—but only their thematic categories, one of which is 'Geospatial'. The 'high value dataset' concept is also considered in national data policy and programmes in different European countries, typically incorporating 'core' datasets, including geospatial data. | High Value Dataset Joinup (europa.eu) |
| Core reference dataset | Core reference dataset can be defined as the minimum set of authoritative, harmonised and homogeneous framework data needed to either meet common requirements for applications at cross-border, European and global levels or to geo-reference and locate other thematic data. In the latter case, core data may be used as a framework on which other richer, more detailed, thematic geospatial and statistical data would rely. | http://ggim.un.org/meetings/GGIM-committee/documents/GGIM5/E-C20-2015-4%20Fundamental%20Data%20Themes%20Report.pdf |
| Digital government | Government designed and operated to take advantage of information in creating, optimising, and transforming, government services. | Digital government Joinup (europa.eu) |

| Term | Meaning | Link |
|--|--|---|
| European Single Procurement Document | The European Single Procurement Document (ESPD) is a self-declaration by economic operators providing preliminary evidence replacing the certificates issued by public authorities or third parties. As provided in Article 59 of Directive 2014/24/EU, it is a formal statement by the economic operator that it is not in one of the situations in which economic operators shall or may be excluded; that it meets the relevant selection criteria and that, where applicable, it fulfils the objective rules and criteria that have been set out for the purpose of limiting the number of otherwise qualified candidates to be invited to participate. Its objective is to reduce the administrative burden arising from the requirement to produce a substantial number of certificates or other documents related to exclusion and selection criteria | Commission Implementing Regulation (EU) 2016/7 of 5 January 2016 |
| Evidence-based policy making | The development of public policy which is informed by objective evidence, e.g. through data related to the content of the policy. | Evidence-based policy making Joinup (europa.eu) |
| GeoDCAT-AP specification | Data Catalogue vocabulary (DCAT) Application Profile extension for describing geospatial datasets, dataset series, and services. | GeoDCAT-AP Joinup (europa.eu) |
| Geographical Information (GI) Champion | The GI Champion can be appointed to drive through the changes related to running a major GI improvement programme, promoting public sector modernisation through the use of GI, and ensure that the organisation is aware of and convey the benefits of geospatial information and technologies. A GI champion may also be appointed with a pan-government remit. | LIFO Guidelines and Recommendations |
| Key digital public services | The most frequently accessed and sometimes mandatory public services which are delivered with the extensive use of ICT, e.g. registration of land and property, health and welfare, civil status registration, transport, environmental protection, energy production and distribution, public safety, transport, public education etc. National legislation may define which services must be considered key. | https://joinup.ec.europa.eu/collection/european-union-location-framework-eulf/document/recommendation-6 |
| Location data framework | Location data framework describes all the elements – including data assets, standards and technologies, policies and guidance, people and organisations – that are required to unlock the power of location. An SDI is a location data framework | LIFO Guidelines and Recommendations Unlocking the Power of Location: The UK's geospatial strategy 2020 to 2025 |
| Location information strategy | A strategic approach for managing and maximising the value of location information. | Location information strategy Joinup (europa.eu) |

| Term | Meaning | Link |
|------------------------------------|---|---|
| OpenAPI | Specification for machine-readable interface files for describing, producing, consuming, and visualising RESTful web services. | https://swagger.io/specification/ |
| Open and collaborative methodology | Any system of innovation or production that relies on goal-oriented yet loosely coordinated participants who interact to create a product (or service) of economic value, which they make available to contributors and noncontributors alike. Prominently used for the development of open source software. | https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1096442 |
| Open licence | An open licence is a way for the copyright holder (creator or other rightsholder) to grant the general public the legal permission to use their work. The applied open licence is usually indicated directly on the work and wherever the work is shared. As in the case of other licences, open licences do not imply a transfer of copyright or other intellectual property rights. Someone granting an open licence for their work still remains the copyright holder of their materials and can themselves use the materials as they wish, e.g. to commercialise their project outcomes. | https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-c/important-contractual-provisions/open-licence-intellectual-property-rights_en |
| RESTful web services | Web services built on Representational State Transfer (REST) principles, where resources used by the services are made available through URIs (Uniform Resource Identifiers) and can be updated without affecting the service. | https://docs.oracle.com/javase/6/tutorial/doc/gijqy.html |
| Sector legislation | Legislation about a particular domain (e.g. health, environment) or sub-domain (e.g. hospitals, water). Within INSPIRE, reference can be made to the nine thematic clusters, which have associated legislation, e.g. E-PTRT (European Pollutant Release and Transfer Register) IED (Industrial Emissions Directive). | https://inspire.ec.europa.eu/call-facilitators-%E2%80%93-thematic-clusters/50 |
| Spatial Data Infrastructure (SDI) | In general terms, a Spatial Data Infrastructure (SDI) may be defined as 'a framework of policies, institutional arrangements, technologies, data, and people that enable the effective sharing and use of geographic information' [Bernard et al, 2005]. INSPIRE as an SDI for European environmental policy is defined as 'metadata, spatial data sets and spatial data services, network services and technologies, agreements on sharing, access and use, and coordination and monitoring mechanisms, processes and procedures, established, operated or made available in accordance with the Directive'. | Spatial Data Infrastructure Joinup (europa.eu) |

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Annex 1: LIFO 2020 Scoring methodology

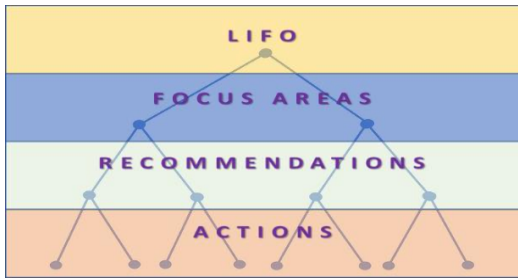


Figure 21 – Hierarchy of indicators and indexes

The LIFO analytical model, described in the *LIFO 2020 Guidelines and recommendations*⁵⁰, is based on a hierarchy of indicators and indexes, as represented in [Figure 21](#): from bottom to top, (action) indicators, recommendation indexes, focus area indexes and LIFO index.

(Action) Indicators: A number of actions⁵¹ have been selected in the EULF Blueprint as being representative of the scope of the recommendations to which they belong. An indicator has been

designed to measure how monitored countries are progressing towards the “vision” outlined in the EULF Blueprint for each of these actions. Each primary indicator is represented by a code **Qx.y.z** where x is the recommendation number, y the progressive indicator number for that recommendation and z (where applicable) a second-level indicator providing additional information on the corresponding Qx.y first level indicator. Information to calculate each primary indicator is collected through the replies provided by participating countries to a question for each indicator. The model also includes secondary indicators, represented by a code **Sx.y**. These latter are computed reusing information from existing sources, for example, the INSPIRE monitoring. See [Annex 2](#) for a list of the indicators and pertinent questions for each recommendation.

Each indicator is calculated on a specific scale, which best reflects the nature of the action (e.g. if it can be measured over a continuous or a discrete scale, if it is a binary phenomenon, i.e. yes/no or similar, etc.). Indicators are then normalised over a scale of 0-1, as follows:

Score attributed to the answer / maximum applicable value, where the maximum applicable value is the upper end of the scale that the non-normalised value of the indicator can reach.

Note: Optional questions in the LIFO survey capture supplementary information relevant to corresponding mandatory questions about the actions. The mandatory questions (i.e. those marked “*” in the survey) are scored, whereas the optional questions are not scored.

(Multi-level) indexes: indexes aggregate the action indicators at the levels of recommendations, focus areas, and LIFO overall to represent each country's performance at the respective levels. The relationships between (action) indicators, recommendation indexes, focus area indexes and the overall LIFO index are described in [Table 7](#).

| Level | No. | Scoring method |
|----------------|-----|---|
| LIFO | 1 | Average of the 5 focus area indexes |
| Focus area | 5 | Average of scores for all recommendations associated with a focus area |
| Recommendation | 19 | Average of normalised scores for all indicators associated with a recommendation |
| Action | 48 | Scores calculated using different scoring methods converted to standard normalised scores in range 0-1. |

Table 7 – Relationships between indicators and indexes

Action indicators, recommendation indexes and focus area indexes are thus equally weighted in the calculation of their respective upper-level indexes.

Note: Some questions have a “don't know” response as an option. Respondents are encouraged to provide answers wherever possible. Where a “don't know” response is given, the indicator gets a null score. This is shown as zero in the indicator charts, and the indicator is ignored in calculating the index scores.

⁵⁰ https://joinup.ec.europa.eu/sites/default/files/inline-files/2020_LIFO_Guidelines_2.pdf

⁵¹ Described in the “How” section of each Recommendation.

Annex 2: LIFO 2020 Indicators

| Focus Area: Policy and Strategy Alignment | | | Changes vs 2019 |
|---|--|---|-----------------|
| No. | Indicator | Question | |
| Recommendation 1 | | | |
| Q1.1 | Alignment between location and digital government strategies | Is there a location strategy in your country that is closely connected to your digital government strategy? | Change in scale |
| Q1.1.1 | Link to strategies | Please supply links to the location strategy and digital government strategy. | |
| Q1.2 | Use in digital government of authoritative location datasets and services | To what extent is the use in digital government of authoritative location datasets and services regulated by legislation and/or binding agreements? | |
| Recommendation 2 | | | |
| Q2.1 | Licensing policy | To what extent is location data available free of charge under an open licence without restrictions or with minimum restrictions? | Change in scale |
| Q2.1.1 | Licensing policy – covered datasets | Which of the following core location datasets with high importance for multiple external users (also known as "high value datasets" in national and European open data strategies) can be accessed (e.g. through APIs or downloads) free of charge under an open licence without restrictions or with minimum restrictions? | New question |
| Q2.2 | Core reference data policy on location data | Are core location reference datasets (for the list of core location datasets please refer to Q2.1.1) made available as part of a broader core reference data policy (which also includes people, businesses, vehicles etc.)? | Change in scale |
| Q2.3 | Use of common data licensing frameworks | To what extent is location data available under a common licensing framework for all government data? | Change in scale |
| Q2.4 | Coverage of location data by national guidelines on the publication of Public Sector Information | Do your pan-government guidelines on the publication of public sector data cover location aspects? "Cover location aspects" means that in the guidelines some specific geospatial topics are highlighted (e.g. formats, encoding, accessibility through specific web services, specific legislation,). | |
| Recommendation 3 | | | |
| Q3.1 | Preparedness for GDPR under location aspects | How well-prepared are controllers and processors of public sector location data in your country for GDPR, including awareness of potential location data privacy issues | |

| | | | |
|-------------------------|---|--|--|
| | | and processes in place to comply with the rights of data subjects? | |
| Recommendation 4 | | | |
| Q4.1 | Use of location-based analysis for evidence-based policy making | Is location-based evidence and analysis used to help in developing relevant policies and monitoring outcomes? | |
| Recommendation 5 | | | |
| Q5.1 | References to INSPIRE and relevant standards in procurement documents | For public sector procurements of location information or services, what references are made to INSPIRE and relevant standards in the procurement documents? | |

| Focus Area: Digital Government Integration | | | Changes vs 2019 |
|---|--|--|--|
| No. | Indicator | Question | |
| Recommendation 6 | | | |
| Q6.1 | Improvement of location information use in digital public services | To what extent is there a process for identifying opportunities and implementing improvements to key digital public services in their use of location information, including considering new business and delivery models? | Change in scale |
| Q6.2 | Optimal use of location information is used optimally in key digital public services | Please select up to 6 sectors where location information has the most significant role to play in digital public services. For these sectors, please specify how well 'optimised' is the use of location data in digital public services. In this respect, 'optimisation' relates to extent of use and contribution to innovation and quality of service. | Change in scale |
| Recommendation 7 | | | |
| Q7.1 | Use of SDI in cross-government digital services | To what extent is the SDI used in delivering digital public services across government (in different sectors and levels of government)? | Change in scale |
| S7.1 | Implementation status of the INSPIRE directive | Average of indicators for the five actions in the INSPIRE country fiche: <ul style="list-style-type: none"> - Availability of spatial data and services - Conformity of metadata - Conformity of spatial data sets - Accessibility of spatial data sets through view and download services - Conformity of the network services | Change of calculation method for the INSPIRE country fiche |
| Q7.2 | Use of SDI in cross-border services | Is the country actively involved in delivering cross-border digital public services using their spatial data infrastructure (SDI)? | Change in scale |

| | | | |
|-------------------------|--|---|--|
| Q7.3 | SDI approach used | Please specify the main SDI approach used for delivery of key digital public services in the sectors selected in 6.2. | New question |
| Q7.4 | Use of the public sector SDI by private sector and other organisations (e.g. NGOs) | To what extent is the public sector SDI used by the private sector and other organisations (e.g. NGOs) for delivery of 'new and innovative' applications, products and services? | |
| Recommendation 8 | | | |
| Q8.1 | Use of an open and collaborative methodology in location-enabled digital public services | To what extent is an open and collaborative methodology applied, to design and improve location-enabled digital public services at local, sub-national or national level (e.g. through consultations, user groups, feedback requests, iterative development)? | |
| Q8.1.1 | Level of government where a collaborative approach is used | At what level of government is the collaborative approach applied? | Single choice in 2019, multiple choice in 2020 |
| Q8.2 | Collaboration with external parties in service delivery | When developing or delivering location-based digital public services, in what ways are external parties involved? This includes the private sector, NGOs and citizens. | Change in scale |
| Recommendation 9 | | | |
| Q9.1 | Approach for integration of statistical and location information | What actions are implemented for the integration of location and statistical information in the production of location-based statistics? | |

| Focus Area: Standardisation and Reuse | | | Changes vs 2019 |
|---------------------------------------|---|---|-----------------|
| No. | Indicator | Question | |
| Recommendation 10 | | | |
| Q.10.1 | Adoption of a common architectural approach | In your country, does the architecture for location data and services in the SDI fit within a broader national ICT architecture approach that is applied in the design, re-engineering, interconnectivity and reuse of ICT and data in digital public services? | |
| Q10.2 | Procedure to incorporate new technological features | Please describe the approach (if any) to discover, explore and incorporate new technological features or emerging technologies. | |
| Q10.3 | Status of development of APIs for INSPIRE / SDI | Please describe the status of development of APIs for SDI / INSPIRE. | |
| Q10.3.1 | Access to high-value location datasets through APIs | Which core "high value" location datasets can be accessed using APIs? | New question |

| | | | |
|--------------------------|--|--|--|
| Q10.3.2 | Action to foster APIs take-up | Where there are APIs for location datasets, what steps are commonly taken to stimulate take-up and ensure they are as useful as possible? | New question |
| Recommendation 11 | | | |
| Q11.1 | Reuse of generic ICT solutions in the SDI | Please describe the reuse status of generic ICT solutions in the SDI. | Single choice in 2019, multiple choice in 2020 |
| Q11.2 | Implementation of location information registers | What registers of location information are implemented? | |
| Recommendation 12 | | | |
| Q12.1 | Use of geospatial standards | What type of geospatial domain standards are used in your country? | Change of question |
| S12.1 | Conformity of spatial data sets to INSPIRE implementing rules | Conformity of spatial data sets with Regulation (EU) No 1089/2010 (from INSPIRE monitoring) | |
| Q12.2 | Use of a standardised metadata approach | To what extent is a standardised metadata approach adopted to facilitate discoverability of spatial and non-spatial data through joint access mechanisms such as those listed in the question Q16.1? | New question |
| Q12.2.1 | Use of specifications for combining spatial and non-spatial metadata | Where an approach to facilitate a joint discoverability of spatial and non-spatial data is adopted, what specifications and tools are used to a significant degree to combine spatial with non-spatial metadata in national implementations? | New question |
| S12.2 | Conformity of the INSPIRE network services with INSPIRE implementing rules | Conformity of the INSPIRE network services with Regulation (EC) No 976/2009 (from INSPIRE monitoring) | |
| Recommendation 13 | | | |
| Q13.1 | Approach to location data quality | What actions are typically implemented to assure quality of location data in your country? | |
| Q13.1.1 | Use of data quality standards | What data quality standard is applied to location data? | New question |
| Q13.2 | Approach to location data quality governance | What type of actions relating to location data quality governance are put in place in your country? | |
| Q13.2.1 | Collection of feedback from users | Where feedback is obtained from users, what approach is taken? | |

| Focus Area: Return on Investment | | | Changes vs 2019 |
|---|--|---|------------------------|
| No. | Indicator | Question | |
| Recommendation 14 | | | |
| Q14.1 | Performance monitoring of location-enabled digital public services | What of the following elements are evaluated to assess the efficiency | |

| | | | |
|--------------------------|---|---|--------------------|
| | | and effectiveness of location-based services in your country? | |
| Q14.1.1 | Performance monitoring scope | Are the measurements done: <input type="checkbox"/> At a project or service level <input type="checkbox"/> At an organisational level <input type="checkbox"/> At an SDI / national level <input type="checkbox"/> A combination of the above | |
| Q14.2 | Approach to impact-based improvement | What actions are implemented for impact-based improvement in location-enabled processes and services in your country? | |
| Recommendation 15 | | | |
| Q15.1 | Approach to communication of benefits | Is communication delivered on the availability and benefits of location data and location-enabled digital public services to raise awareness and understanding using, for example, factsheets, news articles, web-based communication, videos, events? | Change of question |
| Recommendation 16 | | | |
| Q16.1 | Ease of searching, finding and accessing location data | What measures are implemented to make the process of searching, finding and accessing location data and web services as easy as possible for companies, research institutions, citizens and other interested parties? | |
| S16.1 | Existence of policies supporting the reuse of PSI | Existence of policies supporting the reuse of Public Sector Information by the private sector (from the Open Data Maturity Report) | |
| Q16.2 | Support to the development of products and services by external parties | Which of the following actions are implemented in your country to actively support private, non-profit and academic actors in the development of new products, services or research using public sector location data? | Change of scale |
| Q16.3 | Existence of a strategic approach to funding location reference data | Is there a strategic approach to funding public sector location reference data to make access at point of use cost effective? | |

| Focus Area: Governance, Partnerships and Capabilities | | | Changes vs 2019 |
|--|--|--|--|
| No. | Indicator | Question | |
| Recommendation 17 | | | |
| Q17.1 | Involvement of stakeholders in decision making on location information in digital government | To what extent are all relevant communities (location and digital government), domains (thematic), administrative levels (central and local) and sectors (public, private, academic, society) involved in decision making on the role of | Multiple choice in 2019, single choice in 2020 |

| | | | |
|--------------------------|--|--|--|
| | | location information in Digital Government? | |
| Q17.2 | Coordinated governance of SDI and digital government | To what extent do organisations responsible for SDI and Digital Government coordination deal jointly with the governance of the SDI in the context of Digital Government? | Multiple choice in 2019, single choice in 2020 |
| Recommendation 18 | | | |
| Q18.1 | Use of formal agreements between public authorities in the country to operate location data services | To what extent do formal agreements exist between public authorities in the country to finance, build and operate location data services or digital public services using location data? | |
| Q18.2 | Use of formal agreements to operate cross-border location data services | To what extent do formal agreements exist with public authorities in other countries to finance, build and operate cross-border location data services or digital public services using location data? | |
| Q18.3 | Use of public-private partnerships to operate location data services | To what extent do public-private partnerships exist to finance, build and operate location data services or digital public services using location data? | |
| Recommendation 19 | | | |
| Q19.1 | Use of a strategic approach to geospatial capacity building | To what extent is there a strategic approach to skills and training for innovative geospatial solutions? | Multiple choice in 2019, single choice in 2020 |
| Q19.2 | Awareness raising initiatives in the geospatial domain | What type of initiatives are organised to raise awareness and develop geospatial skills? | Change in scale |

Note: Some indicators have been modified in LIFO 2020 compared with LIFO 2019⁵², with the aim to improve the capability of the LIFO analytical model to represent consistently the state of play of location interoperability at country and European level. The main changes, and the focus areas / recommendations impacted are:

- Digital Government Integration:
 - Reduced focus on INSPIRE as reference SDI for the delivery of location-enabled services ([Recommendation 7](#));
 - Changes in the calculation of INSPIRE country fiche indicators ([Recommendation 7](#)).
- Standardisation and Reuse:
 - More emphasis on the use of APIs for access to and reuse of location data, with new indicators ([Recommendation 10](#));
 - New indicators on the use of metadata for joint discoverability of spatial and non-spatial data ([Recommendation 12](#)).
- Governance, partnerships and capabilities:



⁵² LIFO 2019 indicators are listed at <https://joinup.ec.europa.eu/node/704929>, while LIFO 2020 indicators are listed at <https://joinup.ec.europa.eu/node/704251>

- Questions on governance (approaches to joint involvement of all relevant stakeholders in the governance of SDI – [Recommendation 17](#)) and capabilities (approaches to geospatial training and skills - [Recommendation 19](#)) have passed from multiple choice to single choice

Where changes have been made to the indicators from 2019 to 2020, they are classified as follows:

- “Change in scale”: one or more options of reply have been added (or eliminated);
- “Change of question”: the question has been completely redrafted;
- “New question”: the question was not included in LIFO 2019 questionnaire;
- “Single choice in 2019, multiple choice in 2020”: in 2019 it was possible to select only one option as reply, in 2020 more than one option can be selected;
- “Multiple choice in 2019, single choice in 2020”: in 2019 it was possible to select more than one option as reply, in 2020 only one option can be selected.

Annex 3: LIFO 2020 Additional information: Italy

| Title | Attachment ⁵³ |
|--|---|
| LIFO Survey questionnaire 2020 – Italy |  LIFO Survey 2020 Italy |
| LIFO Survey questionnaire 2020 scores and charts – Italy |  LIFO 2020 scores and charts Italy |

| FOCUS AREA | IT 2020 v IT 2019 | | | IT 2020 v EUR 2020 (all countries) | | | IT 2020 v EUR 2020 (2019 countries) | | | IT 2019 v EUR 2019 | | |
|---|-------------------|---------|-------|---------------------------------------|---------|-------|--|---------|-------|--------------------|---------|-------|
| | IT 2019 | IT 2020 | +/- | EUR 2020 | IT 2020 | +/- | EUR 2020 | IT 2020 | +/- | EUR 2019 | IT 2019 | +/- |
| Policy and strategy alignment | 0.48 | 0.61 | 0.13 | 0.62 | 0.61 | -0.01 | 0.68 | 0.61 | -0.07 | 0.57 | 0.48 | -0.09 |
| Digital government integration | 0.42 | 0.42 | 0 | 0.57 | 0.42 | -0.15 | 0.58 | 0.42 | -0.16 | 0.54 | 0.42 | -0.12 |
| Standardisation and reuse | 0.47 | 0.52 | 0.05 | 0.55 | 0.52 | -0.03 | 0.62 | 0.52 | -0.10 | 0.54 | 0.47 | -0.07 |
| Return on investment | 0.53 | 0.51 | -0.02 | 0.58 | 0.51 | -0.07 | 0.65 | 0.51 | -0.14 | 0.60 | 0.53 | -0.07 |
| Governance, partnerships and capabilities | 0.46 | 0.56 | 0.10 | 0.45 | 0.56 | 0.11 | 0.50 | 0.56 | 0.06 | 0.44 | 0.46 | 0.02 |
| LIFO INDEX | 0.47 | 0.52 | 0.05 | 0.55 | 0.52 | -0.03 | 0.60 | 0.52 | -0.08 | 0.54 | 0.47 | -0.07 |

⁵³ Attachments can be accessed by clicking on the respective icon when opening the factsheet in Adobe Acrobat Reader, provided that the application preferences are set to do so.