



European  
Commission



# LIFO: Location Interoperability Framework Observatory

## 2020 COUNTRY FACTSHEET

### AUSTRIA



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# 1. Introduction



The Location Interoperability Framework Observatory (LIFO<sup>1</sup>) 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) Blueprint<sup>2</sup> (see [Figure 1](#)).

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

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

LIFO is coordinated by the European Location Interoperability Solutions for e-Government (ELISE)<sup>5</sup> action in the Interoperability Solutions for European Public Administrations, Businesses and Citizens (ISA<sup>2</sup>)<sup>6</sup> programme.



Figure 1 - EULF Blueprint focus areas

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

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

<sup>3</sup> [https://ec.europa.eu/isa2/eif\\_en](https://ec.europa.eu/isa2/eif_en)

<sup>4</sup> [https://ec.europa.eu/isa2/solutions/nifo\\_en](https://ec.europa.eu/isa2/solutions/nifo_en)

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

<sup>6</sup> [https://ec.europa.eu/isa2/home\\_en](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 model<sup>7</sup>. 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 Directive<sup>8</sup>. 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 Directive<sup>9</sup>, obligations under the General Data Protection Regulation (GDPR)<sup>10</sup>, approaches under the Public Procurement Directive<sup>11</sup>, and factors relevant to the EIF<sup>12</sup>.

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*<sup>13</sup> and a *European State of Play Report*<sup>14</sup> and are available for users to explore in the *LIFO interactive dashboards*<sup>15</sup>, which are linked in their turn to the *EULF Blueprint*<sup>16</sup>.



Figure 2 - LIFO online resources

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

<sup>8</sup> 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.”

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

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

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

<sup>12</sup> 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>

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

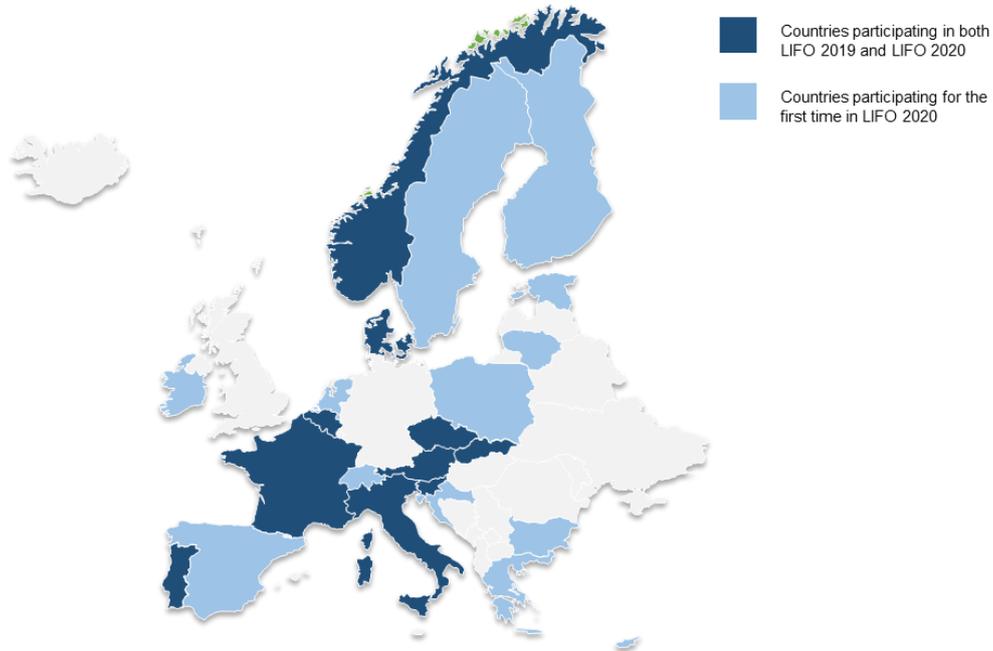
<sup>14</sup> <https://joinup.ec.europa.eu/node/704361>

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

<sup>16</sup> <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](#))<sup>17</sup>.

<sup>17</sup> 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 Austria 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 Austria comprising the questionnaire response, scores and charts from the response, and a 2019/2020 comparison table.

The 2020 LIFO monitoring information for Austria has been provided by *Austrian Federal Office for Metrology and Surveying*.

## 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 Austria scores below but close to the European averages across the focus areas assessed, with larger gaps under “Governance, Partnerships and Capabilities” and “Policy and Strategy Alignment” (see [Figure 4](#)).

“Return on Investment” is one of the two focus areas where the country reaches the best results, thanks to a good alignment of the practices under the three recommendations with the European averages. A good number of measures are in place to facilitate the process of searching, finding and accessing location data and web services for private and non-governmental actors. The benefits of integrating and using location information in digital public services are identified and communicated effectively. This however does not turn into a widespread application of impact-based improvements in location-enabled processes and services. The support to private and non-governmental actors in the development of new products, services or research using public sector location data is limited.

“Standardisation and Reuse” is the other focus area with the highest score for the country. The positive factors contributing to this result are the reuse of generic ICT solutions in the spatial data infrastructure (SDI), including solutions from the ISA<sup>2</sup> catalogues, and the high compliance of network services with the relevant INSPIRE implementing regulation. The lack of a common architectural approach for location data and services and the location data quality assurance being limited to the ex-post analysis of quality issues are two significant weaknesses in this area.

Slightly lower is the country’s positioning in the “Policy and Strategy Alignment” focus area, thanks to the preparedness and awareness in applying all the measures to protect location data privacy according to the GDPR. Another strength is the use of location information to support policy making in most relevant topics. The lack of a location strategy closely connected with the digital government strategy, however, leads to a significant gap against the European average.

A small degree further below is the “Digital Government Integration” focus area, under which the country adopts a good number of actions for the integration of location and statistical information in the production of location-based statistics. The overall implementation maturity of the INSPIRE directive is high. On the other hand, the use of SDIs in digital public services is still basic and the application of a collaborative approach in developing location-enabled digital public services is quite limited.

Finally, the “Governance, Partnership and Capabilities” focus area is where the score is the lowest and the gap with the European average the largest. The weak joint leadership on the role of the SDI in digital public services is a major factor in the country’s low positioning. A positive note is the array of training and awareness-raising initiatives delivered in the geospatial domain.

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*The value of the overall LIFO index combining the scores for all focus areas is 0.48, which reflects a number of gaps in Austria’s practices in various areas of location interoperability. This compares with a European average of 0.55.*

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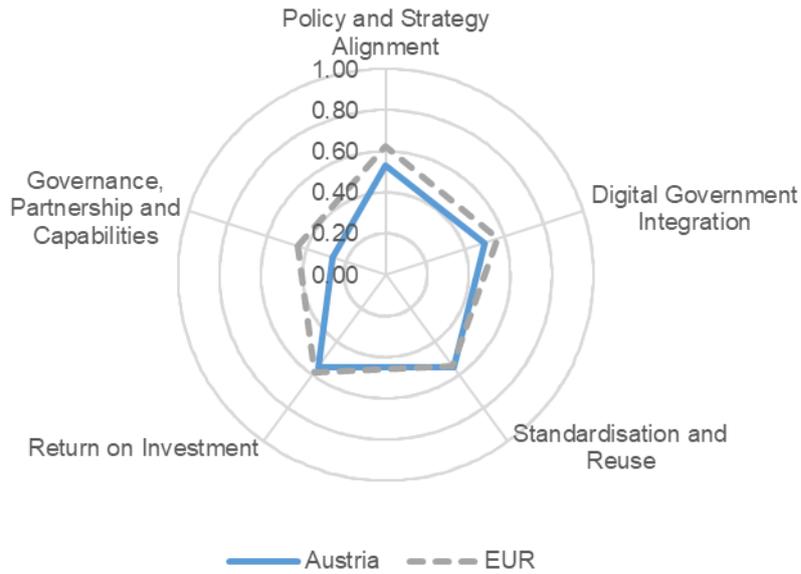


Figure 4 – Overall EULF Blueprint implementation

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

Focus Area	Strengths	Weaknesses
 <b>Policy and Strategy Alignment</b>	<ul style="list-style-type: none"> <li>Most organisations are fully aware of data privacy issues; controllers and processors of public sector location data are prepared for GDPR</li> <li>Location information is used to support policy making in most relevant topics</li> </ul>	<ul style="list-style-type: none"> <li>There is no location strategy and only tactical actions are ongoing</li> </ul>
 <b>Digital Government Integration</b>	<ul style="list-style-type: none"> <li>The INSPIRE implementation maturity is high</li> <li>The integration of statistical and location information relies on a wide array of actions</li> </ul>	<ul style="list-style-type: none"> <li>The national SDI is not consistently used for the delivery of key digital services</li> <li>An open and collaborative methodology is only occasionally applied to design and improve location-enabled digital public services</li> </ul>
 <b>Standardisation and Reuse</b>	<ul style="list-style-type: none"> <li>a wide range of SDI / INSPIRE datasets can be accessed using a series of well documented location data APIs</li> <li>Generic ICT solutions, including some from the ISA<sup>2</sup> catalogues, are reused in the SDI</li> </ul>	<ul style="list-style-type: none"> <li>There is no commonly used architectural approach for location data and services</li> <li>Location data quality assurance is limited to the ex-post analysis of quality issues</li> </ul>

Focus Area	Strengths	Weaknesses
	<ul style="list-style-type: none"> <li>The compliance of network services with the relevant INSPIRE implementing regulation is high</li> </ul>	
 <i>Return on Investment</i>	<ul style="list-style-type: none"> <li>Frequent and effective communication is delivered about the benefits of integrating and using location information in digital public services</li> <li>The process of searching, finding and accessing location data and web services is facilitated through the availability of a consistent set of open data portals and websites</li> </ul>	<ul style="list-style-type: none"> <li>Impact-based improvement in location-enabled processes and services is not widely applied</li> <li>Limited support to private, non-profit and academic actors in the development of new products, services or research using public sector location data</li> </ul>
 <i>Governance, Partnerships and Capabilities</i>	<ul style="list-style-type: none"> <li>A broad range of initiatives are organised to raise awareness and develop geospatial skills</li> </ul>	<ul style="list-style-type: none"> <li>Limited integration in the governance of location information processes with eGovernment processes, with only some involvement of relevant stakeholders</li> </ul>

Table 1 – Strengths and Weaknesses by Focus Area

### 3.1.2 2019/2020 Comparison

Austria is one of the countries that has participated in both LIFO 2019 and LIFO 2020. Comparisons over the two years can be made both within the country and relative to 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 two 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 Austria has decreased slightly from 0.51 to 0.48. This is due in a large part to the minor negative variations in all focus areas, except “Return on Investment”.

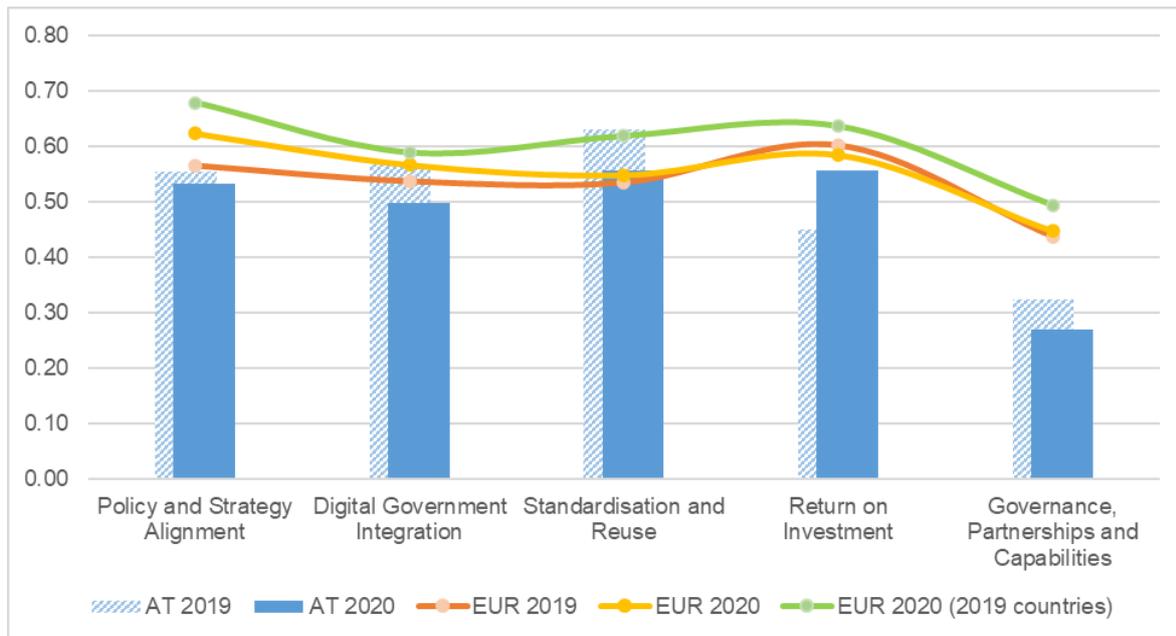


Figure 5 – Comparison between LIFO 2019 and LIFO 2020 - Austria

“Return on Investment” has indeed registered an increase by 0.11, from 0.45 to 0.56, thus reducing the gap with the averages of all participating countries between 2019 and 2020 from 0.15 to only 0.02 (although the gap is still at 0.08 with the average of the countries participating in both years). This improvement is exclusively due to communication on the availability and benefits of location information, which was one of the weakest points reported in 2019, while in 2020 it has become thorough, frequent and convincing.

In the “Policy and Strategy Alignment” focus area, the country has largely confirmed its positioning compared with 2019, except in the strategy dimension. In 2019 it was reported that the country had a location strategy. In 2020, it has been clarified that no such strategy exists, and that the general framework for geospatial activities is instead provided by the legal framework of the INSPIRE implementation. The reduction of the focus area index by 0.02 (from 0.55 to 0.53) is exclusively due to that factor. The gap with the averages of the countries participating in both years has widened from 0.02 to 0.15.

The country’s positioning in the “Governance, Partnerships and Capabilities” focus area has also deteriorated both in absolute terms (by -0.05 points from 0.32 in 2019 to 0.27 in 2020) and in relative terms (the gap with the countries participating in both years has increased from -0.12 in 2019 to -0.22 in 2020). This result has been influenced by the reduced engagement of relevant stakeholders in decision making on the SDI; while consultation mechanisms with relevant stakeholders were in place in 2019, this engagement may have been heavily impacted by the ongoing COVID-19 crisis. The lack of updated information on partnership agreements with public authorities in other countries and with the private sector has not helped to improve the results.

The focus area index for “Digital Government Integration”, has decreased by 0.07 compared with 2019, from 0.57 to 0.50. The index has been negatively affected by the results in terms of frequency and quality of use of the SDI in digital public services, which were not monitored in 2019, and by the lower adoption of an open and collaborative methodology. The integration of location and statistical information has remained a point of strength and has partially offset those negative trends. All in all, the gap with the average of the countries participating in both years has gone from 0.03 to -0.09.

The “Standardisation and Reuse” focus area has also contributed to the overall lower LIFO index, with its decrease by 0.07 compared to 2019 (from 0.63 to 0.56). It has been clarified that the common location architecture reported in 2019 was only limited to the needs of INSPIRE implementation and cannot be considered as an overarching location architecture. This focus area has also seen a deterioration of Austria’s positioning relative to the other countries: the gap with those participating in both years has gone from 0.09 in 2019 to - 0.06 in 2020.

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.
<a href="#">Recommendation 1</a>	Connect location information and digital government strategies in all legal and policy instruments
<a href="#">Recommendation 2</a>	Make location information policy integral to, and aligned with, wider data policy at all levels of government
<a href="#">Recommendation 3</a>	Ensure all measures are in place, consistent with legal requirements, to protect personal privacy when processing location data
<a href="#">Recommendation 4</a>	Make effective use of location-based analysis for evidence-based policy making
<a href="#">Recommendation 5</a>	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

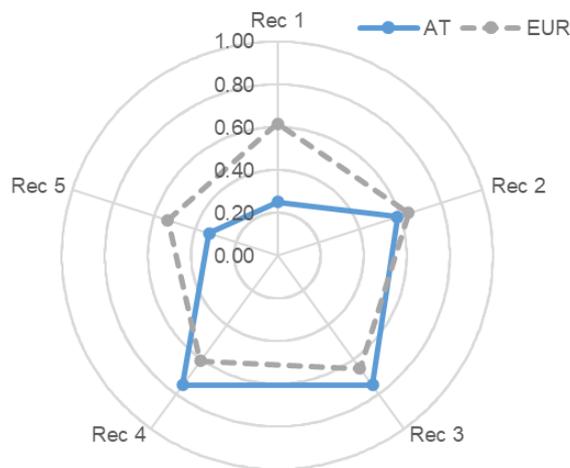


Figure 6 - Policy and Strategy Alignment - scores by recommendation

The "Policy and Strategy Alignment" focus area index for Austria is 0.53, quite below the European average of 0.62.

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

The points of strength for the country are the preparedness for location data privacy requirements ([Recommendation 3](#)) and the use of location information for policy making ([Recommendation 4](#)), both above the European averages and reaching good

levels of excellence. The alignment between location policy and wider data policy in the various sectors is also quite good and almost in line with the average ([Recommendation 2](#)). The use of standards in public procurement of location data and services ([Recommendation 5](#)) and, most of all, the strategy setting ([Recommendation 1](#)) are where the country lags behind, with significant gaps in relation to the respective European averages.

Controllers and processors of public sector location data are well prepared on the GDPR and most organisations are fully aware of the potential location data privacy issues ([Recommendation 3](#)). No significant complaints, cases or fines are known in relation to location

data privacy. The Data Protection Act (DSG)<sup>18</sup> is the Austrian law comprising provisions and stipulations for the implementation of GDPR for the purposes of prevention, detection, investigation or prosecution of criminal offences or the execution of criminal penalties, including protection from and prevention of threats to public safety, as well as for purposes of national security, intelligence and military intrusion prevention.

Location-based evidence is used to help developing policies and monitoring outcomes for most relevant policy topics ([Recommendation 4](#)), for example:

- environmental<sup>19</sup>: the chemical-analytical laboratory is an accredited testing centre for environmental, genetically modified organisms and fuel analyses according to the international standard ISO / IEC 17025. The Laboratory is the national reference laboratory for dioxins and polychlorinated biphenyls (PCB) as well as for genetically modified organisms in accordance with the European Food Regulation (Regulation (EC) No. 882/2004). The Laboratory relies heavily on location data to provide inputs for the implementation of the European Food Regulation;
- geostatistics<sup>20</sup>: “While statistics were originally created for administrative purposes and to form the basis of political decision-making, their application and use for these purposes has become of increasing importance for the general public. By offering tailor-made services, Statistics Austria aims to meet individual requirements and to provide the requested information to users in an easily accessible format and as quickly as possible”<sup>21</sup> Location plays an important role in the statistical information used for policy-making purposes.

The integration and alignment of location information policy within wider data policy ([Recommendation 2](#)) is quite good although weaker than for the average of the surveyed countries. Most location datasets are available free of charge under an open licence with minimum restrictions, which usually consist of charges based on the volume of data or type of access. The core location datasets with minimum restriction are:

- addresses;
- administrative units;
- air quality;
- elevation;
- geographical names;
- health statistics (illness and cause of death);
- hydrography;
- land cover;
- population distribution and demography;
- protected sites;
- statistical units;
- transport networks;
- transport timetables;
- water quality;
- weather observations.

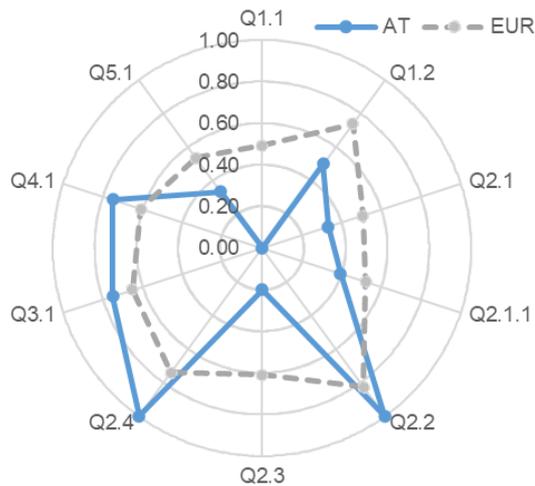
There is no common data licensing framework: location data tends to be available through different licensing arrangements from different data providers.

<sup>18</sup> <https://www.dsb.gv.at/recht-entscheidungen/gesetze-in-oesterreich.html>

<sup>19</sup> [Umweltthemen \(umweltbundesamt.at\)](https://www.umweltbundesamt.at/umweltthemen)

<sup>20</sup> [http://pic.statistik.at/web\\_de/statistiken/index.html](http://pic.statistik.at/web_de/statistiken/index.html)

<sup>21</sup> [https://www.statistik.at/web\\_en/about\\_us/index.html](https://www.statistik.at/web_en/about_us/index.html)

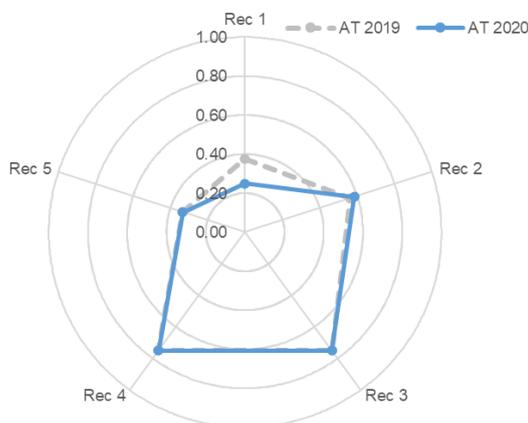


*Figure 7 - Policy and Strategy Alignment - scores by indicator*

Austria there is no location strategy, but only an operational framework to implement the legal framework provided by INSPIRE ([Recommendation 1](#)). The Digital Strategy for Austria<sup>24</sup> contains some elements pertinent to the geospatial dimension. There is sector legislation to regulate the use in digital government of authoritative location datasets and services.

Another opportunity for improvement within this focus area is in the use of a standards based approach for the procurement of location data ([Recommendation 5](#)). National procurement rules make only general reference to INSPIRE or other relevant geospatial standards, with no specific details on their application.

### 3.2.2 2019/2020 Comparison



*Figure 8 - Policy and Strategy Alignment – 2019/2020 comparison*

A wide range of location core reference datasets are available for general use as part of a broader core reference data policy. An example is the open data made available on the portal of the Federal Office of Metrology and Surveying - BEV "Bundesamt für Eich und Vermessungswesen"<sup>22</sup>.

The availability of these datasets is regulated by the national guidelines<sup>23</sup> on the publication of public sector data, which also cover location aspects, in particular accessibility and usability.

The policy and strategy alignment between eGovernment and geospatial dimensions is the main weakness under this focus area. In

As it can be seen in [Figure 8](#), the scores for all recommendations in 2019 are confirmed in 2020, except [Recommendation 1](#).

The decrease of the index for that recommendation is mostly due to the review of the assessment done in 2019 on the existence of a location strategy. In 2020, it has been clarified that no such strategy exists, and that the general framework for geospatial activities is provided by the legal framework of the INSPIRE implementation. In both years authoritative location datasets and services have been covered by thematic sector legislation.

The country reports a larger number of core location datasets available under a core reference data policy, but this improvement is offset by the fact that most of those datasets are available at least under minimum restrictions ([Recommendation 2](#)). The approach to licensing has

<sup>22</sup> [https://www.bev.gv.at/portal/page?\\_pageid=713,3175339&\\_dad=portal&\\_schema=PORTAL](https://www.bev.gv.at/portal/page?_pageid=713,3175339&_dad=portal&_schema=PORTAL) (can be accessed upon registration to the portal)

<sup>23</sup> [OGD AT \(wien.gv.at\)](https://www.ogd.at)

<sup>24</sup> <https://www.digitalaustria.gv.at/>

remained the same in both 2019 and 2020, as many Austrian location datasets are available through different licensing arrangements from different data providers.

The country has reported that most organisations are fully aware of and prepared for potential location data privacy issues and required processes, as was the case in 2019 ([Recommendation 3](#)).

Finally, the country has confirmed its positioning on the use of location-based evidence and analysis to develop and assess relevant policies ([Recommendation 4](#)) and on the use of a standards-based approach for public procurements of location data and services ([Recommendation 5](#)).

### 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.
<a href="#">Recommendation 6</a>	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
<a href="#">Recommendation 7</a>	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
<a href="#">Recommendation 8</a>	Adopt an open and collaborative methodology to design and improve location-enabled digital public services
<a href="#">Recommendation 9</a>	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

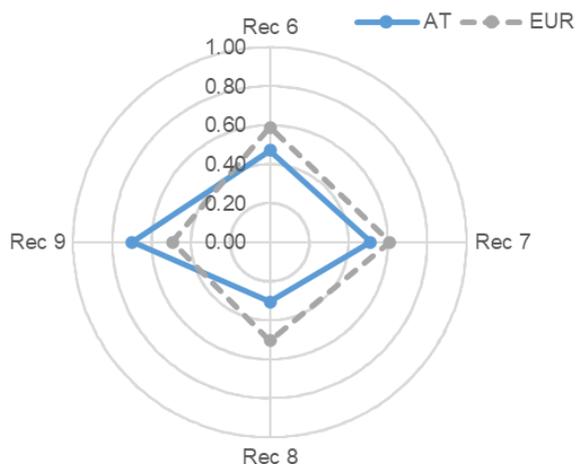


Figure 9 - Digital Government Integration - scores by recommendation

The "Digital Government Integration" focus area index for Austria is 0.50, below the European average of 0.57.

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.

There is a well-practised process for optimising key digital public services in their use of location information, through the adoption of service improvement approaches (e.g. incremental upgrades or end-to-end process analysis)

([Recommendation 6](#)). The sectors where location information has the most significant role to play in digital public services are: agriculture, energy, environment<sup>25</sup>, property and land administration<sup>26</sup>, and transport. In most of these sectors the use of location data in digital public services can be considered optimised.

The use of SDIs in digital public services and data ecosystems across government sectors is still limited ([Recommendation 7](#)). INSPIRE conformant datasets and services are rarely used in digital public services. The level of SDI integration is not yet mature: for the delivery of key

<sup>25</sup> [https://www.bev.gv.at/portal/page?\\_pageid=713,2142803&\\_dad=portal&\\_schema=PORTAL](https://www.bev.gv.at/portal/page?_pageid=713,2142803&_dad=portal&_schema=PORTAL)

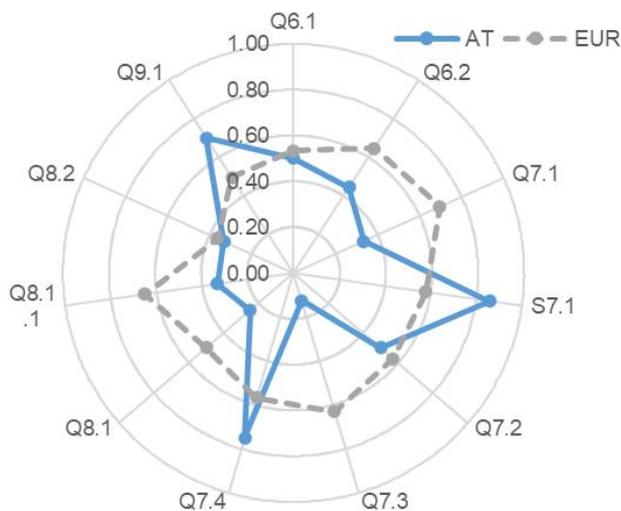
<sup>26</sup> Product Web Service for Land Administration that is used by software developers for their own applications

digital public services, the agriculture and property and land administration sectors use application-specific spatial data, while the environment sector exploits a sector SDI.

Some cross-border digital public services use the country's SDI; also in these cases, INSPIRE conformant datasets and services are rarely used.

The public sector SDI is used by private sector and other organisations (e.g. NGOs) in a number of examples for the delivery of new and innovative applications, products and services. The portal [data.gv.at](https://data.gv.at)<sup>27</sup> provides a catalogue of open solutions making use of public open data, most of which include location data. The list includes more than 600 items, but it is worth noting that only some of the use cases from the private sector are actually relevant, stable and impactful.

In general, the implementation maturity of the INSPIRE Directive is above the European average.



*Figure 10 - Digital Government Integration - scores by indicator*

An open and collaborative methodology is adopted in some limited cases at national level to design and to improve location-enabled digital public services ([Recommendation 8](#)). The involvement of external parties (private sector, NGOs and citizens) in location-based public service delivery is encouraged through different models, namely by implementing public / private partnerships, by making data openly available for external parties to develop their own products and services and by supporting 'civic hacking' to develop new ideas, technologies or methodologies.

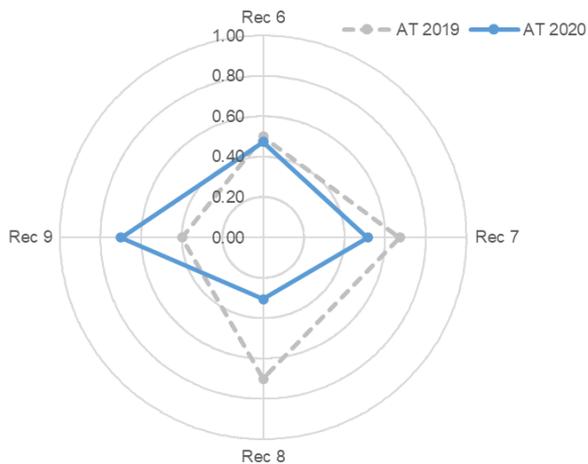
The integration of statistical and location information ([Recommendation 9](#)) relies on an array of actions broader than the

European average. These include:

- 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;
- dynamic update of location-based statistics to give to give an up-to-date snapshot on which to make decisions;
- inclusion of relevant private sector data in the statistical information infrastructure;
- capture of spatio-temporal dimension of statistics in a format that enables it to be used readily in a tool for geo-statistical analysis;
- contribution to European projects aiming at establishing a data and production infrastructure for location-based statistics (e.g. GEOSTAT).

<sup>27</sup> [Anwendungen | data.gv.at](https://data.gv.at); see also best practice [AT2](#)

### 3.3.2 2019/2020 Comparison



*Figure 11 - Digital Government Integration - 2019/2020 comparison*

Compared with the previous year, as shown in [Figure 11](#), the index for this focus area has been negatively affected by the use of application- or sector-specific data used in the various sectors rather than data from the national SDI ([Recommendation 7](#)), which was not monitored in 2019, and by the lower adoption of an open and collaborative methodology ([Recommendation 8](#)). These negative developments have been partially offset by the wider array of actions reported to integrate location information in the production of statistics ([Recommendation 9](#)).

The country has confirmed the service improvement approach through incremental upgrades and the maturity of use of location information in key digital public services ([Recommendation 6](#)).

The lower score under [Recommendation 7](#) acknowledges, as mentioned above, that the level of SDI integration in key digital public services is not yet mature (a factor that was not surveyed in 2019). The score has also been negatively impacted by the review of several other indicators, which now monitor the frequency of use of the SDI rather than the sheer fact of the use of the SDI (and specifically, of INSPIRE data), as in 2019.

The adoption of an open and collaborative methodology to design and improve location-enabled digital public services ([Recommendation 8](#)) has not been maintained to the same extent as in 2019, due to the approach not bringing the expected results in the projects where it had been adopted. External parties are also less involved in the development and delivery of location-enabled public services.

There has been a significant extension in the array of actions to ensure the integration of location data in statistical activities ([Recommendation 9](#)), which now include 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 and the capture of the spatio-temporal dimension of statistics in a format that enables it to be used readily in a tool for geostatistical analysis

### 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 ISA2 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.
<a href="#">Recommendation 10</a>	Adopt a common architecture to develop digital government solutions, facilitating the integration of geospatial requirements
<a href="#">Recommendation 11</a>	Reuse existing authentic data, data services and relevant technical solutions where possible
<a href="#">Recommendation 12</a>	Apply relevant standards to develop a comprehensive approach for spatial data modelling, sharing, and exchange to facilitate integration in digital public services
<a href="#">Recommendation 13</a>	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

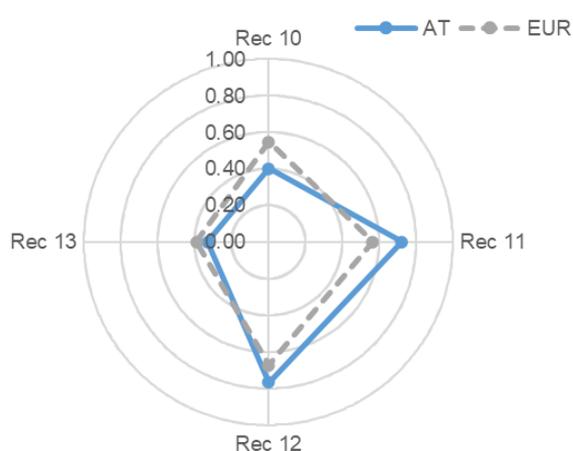


Figure 12 - Standardisation and Reuse - score by recommendation

The “Standardisation and Reuse” focus area index for Austria is 0.56, slightly above the European average of 0.55.

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.

There is no common architectural approach for location data and services. A legally mandated architecture is established only for the purpose of implementing INSPIRE and comprises exclusively the components necessary for this purpose.

([Recommendation 10](#)). The approach to discover, explore and incorporate new technological features or emerging technologies is rather ad-hoc. On the positive side, a wide range of SDI / INSPIRE datasets can be accessed using a series of location data APIs that have been developed, documented and are accessible, namely:

- addresses;
- administrative units;
- air quality;
- cadastral parcels;
- elevation;
- geographical names;

- hydrography;
- population distribution and demography;
- protected sites;
- statistical units;
- transport networks;
- water quality;
- weather observations.

The steps more commonly taken to stimulate take-up of APIs and ensure they are as useful as possible are:

- consultation of user communities in the development / enhancement of APIs;
- development of APIs based on recognised standards (e.g. OGC API - Features, OGC Sensor Things API).

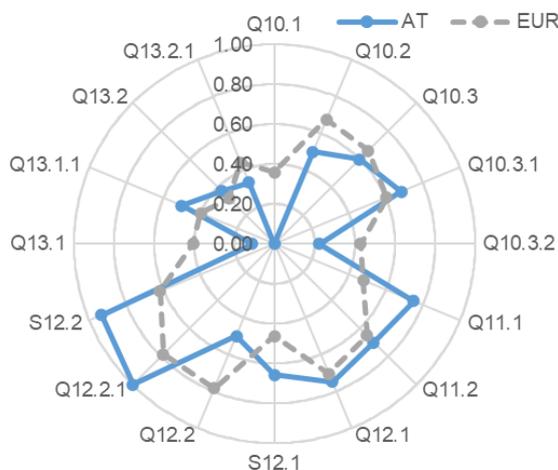


Figure 13 - Standardisation and Reuse - scores by indicator

The alignment with EULF Blueprint recommendations is very good in terms of reuse of existing authentic data, data services and relevant technical solutions ([Recommendation 11](#)).

Reuse of authentic data is enabled by the good number of registers of location information:

- addresses<sup>28</sup>;
- geographical names;
- administrative units;
- cadastral parcels;
- transport networks.
- hydrography.
- code lists.

Generic ICT solutions, both from national catalogues and from the ISA<sup>2</sup> catalogue, are reused in the SDI. An example thereof is the Austrian INSPIRE Registry<sup>29</sup>, which reuses the Re3gistry<sup>30</sup> software.

The following standards are used to develop a comprehensive approach for spatial data modelling, sharing, and exchange to facilitate integration in digital public services ([Recommendation 12](#)):

- international standards (like ISOTC211, OGC, IHO, GDF);
- adaptations of International Standards (e.g. INSPIRE);
- stand-alone domestic standards.

Ad hoc specifications and tools are used for metadata in different situations, based on international/European specifications, to facilitate discoverability of spatial and non-spatial data through joint access mechanisms. This is the case for the INSPIRE metadata, for the SDMX specifications in the statistical community or international specifications used by the Open Data community.

<sup>28</sup> [Österreichisches Adressregister](#)

<sup>29</sup> <https://registry.inspire.gv.at/registry>

<sup>30</sup> <https://joinup.ec.europa.eu/collection/are3na/solution/re3gistry/about>

The conformity of spatial data sets and of network services to the INSPIRE implementing regulations (respectively, Regulation (EU) No 1089/2010 and Regulation (EC) No 976/2009) is above the European average, which is the main factor determining the good result under [Recommendation 12](#).

Under [Recommendation 13](#), location data quality assurance actions focus on data quality measurement rather than data design. ISO 19157 - Geographic information (Data quality) and SO/IEC 25012 Software engineering (Data quality model) are the two data quality standards applied to location data. Location data quality governance operates through:

- well-defined data quality responsibilities;
- definition of a data quality review process;
- collection of feedback from users to report problems and help improve data quality; such feedback is collected through community/discussion forums or indirectly through the analysis of traffic and usage statistics.

### 3.4.2 2019/2020 Comparison



*Figure 14 - Standardisation and Reuse - 2019/2020 comparison*

The positioning in this focus area largely corresponds to that of 2019, as shown in [Figure 14](#), except for a few specific variances.

The status depicted in 2019, where the existence of a common architecture approach for location data and services was reported, has been reshaped by the acknowledgment that the only established architecture serves exclusively the needs of the INSPIRE implementation and cannot be considered as an overarching location architecture. This has determined the lower score under [Recommendation 10](#).

The negative trend under [Recommendation 11](#) is due to the recalibration of the indicator on the reuse of generic ICT solutions, which now better represents the actual maturity of such reuse practices.

The slight improvement under [Recommendation 12](#) is due to the increased percentage of spatial data sets which are in conformity with the relevant INSPIRE implementing regulation, as taken from the INSPIRE monitoring.

Finally, the regression under [Recommendation 13](#) is due to the narrower span of practices aimed at ensuring data quality, now limited to the analysis of quality issues in the data measurement phase, while the practices reported in 2019 included also quality assurance measures in the data design phase.

### 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.
<a href="#">Recommendation 14</a>	Apply a consistent and systematic approach to monitoring the performance of location-based services
<a href="#">Recommendation 15</a>	Communicate the benefits of integrating and using location information in digital public services
<a href="#">Recommendation 16</a>	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

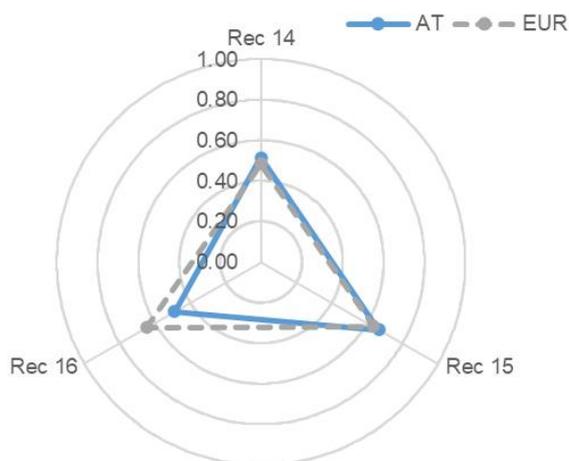


Figure 15 - Return on Investment - score by recommendation

The "Return on Investment" focus area index for Austria is 0.56, somewhat below the European average of 0.58.

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.

A consistent and systematic approach has been applied to monitor the performance of location-based services ([Recommendation 14](#)). Quite a wide range of elements are considered for such monitoring (reusability, reduction in administrative burden, user

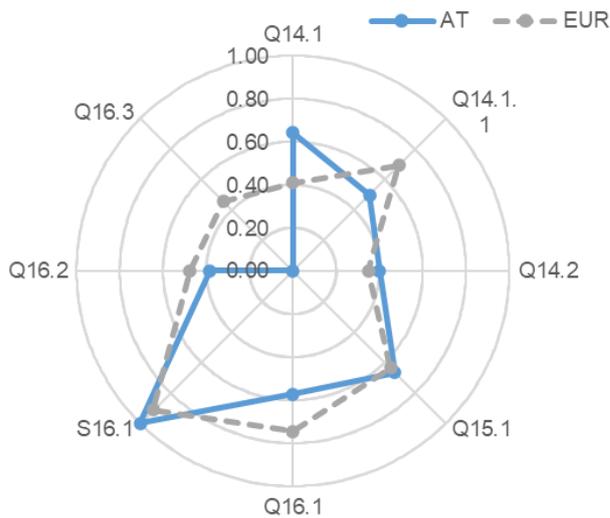
satisfaction, risk, availability, responsiveness, simplification of administrative processes, increased participation and enhanced business opportunities). The measurements are done at the level of some organisations. Impact-based improvement of location-enabled processes and services relies on the regular identification and monitoring of the benefits of location information, as well as on the monitoring of production, dissemination and use of location data and services. Common maturity assessment methods to benchmark the performance e.g. of other member states, or the possibility to direct investments in certain services based on monitoring information, are not exploited.

Frequent, thorough and convincing communication is delivered to raise awareness and understanding about the availability and benefits of location data and location-enabled digital public services ([Recommendation 15](#)). An example in that respect is the INSPIRE

communication and assistance platform<sup>31</sup>. The objective of this platform is to give assistance to the INSPIRE coordination office or to the authorities responsible for the application of the Austrian laws implementing INSPIRE Directive and, if necessary to public authorities handling geodata.

To facilitate the reuse of public sector location information by the private sector ([Recommendation 16](#)), Austria has improved the process of searching, finding and accessing location data and web services easily for companies, research institutions, citizens and other interested parties through various applications. These include:

- a national open data portal<sup>32</sup> merging location data and non-location data;
- geodata from different portals being harvested by the European Data Portal;
- websites with exposition of data;
- availability of spatial data sets on web search engines.



*Figure 16 - Return on Investment - scores by indicator*

businesses, research institutions and other actual or potential users for consideration in further developments of INSPIRE/SDI.

There is no strategic approach to funding public sector location reference data to make access at point of use cost effective.

### 3.5.2 2019/2020 Comparison

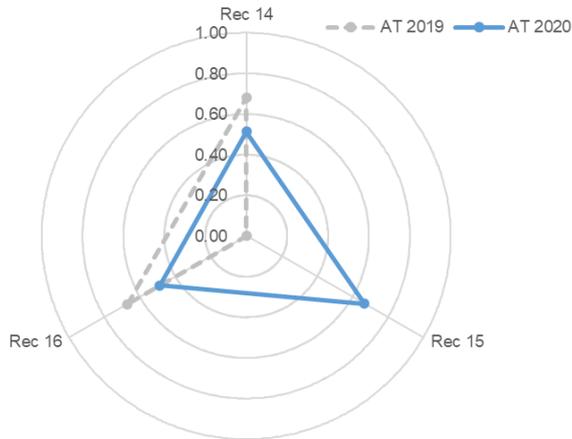
[Figure 17](#) compares the 2020 results against those for 2019. The 2020 results are slightly lower for [Recommendation 14](#) and [Recommendation 16](#) and significantly higher for [Recommendation 15](#), thus determining a marked increase of the focus area index.

The score on the performance and impact monitoring practices ([Recommendation 14](#)) has been affected by the minor extent to which the monitoring has been performed in 2020 compared with 2019 (at the level of single organisations rather than at the level of projects, organisations and the whole SDI).

<sup>31</sup> <https://assistenzzstelle.inspire.gv.at/>; see best practice [AT3](#)

<sup>32</sup> <https://www.data.gv.at/>

Communication on the availability and benefits of location information and location-enabled services ([Recommendation 15](#)), is reported being thorough, frequent and convincing, while no systematic approach to communication was reported in 2019.



The scope of initiatives to facilitate make the process of searching, finding and accessing location data and to support private, non-profit and academic actors in the development of new products ([Recommendation 16](#)) has not changed between the two years. The different scores are due to the recalibration of the indicator on the support side, to better reflect the actual state of play for this recommendation.

[Figure 17 - Return on Investment - 2019/2020 comparison](#)

### 3.6. Governance, Partnerships and Capabilities

<p><b>Vision</b></p>  <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>	
<a href="#">Recommendation 17</a>	Introduce an integrated governance of location information processes at all levels of government, bringing together different governmental and non-governmental actors around a common goal
<a href="#">Recommendation 18</a>	Partner effectively to ensure the successful development and exploitation of Spatial Data Infrastructures
<a href="#">Recommendation 19</a>	Invest in communications and skills programmes to ensure sufficient awareness and capabilities to drive through 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

The “Governance, Partnerships and Capabilities” focus area index for Austria is 0.27, compared with the European average of 0.45.

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.

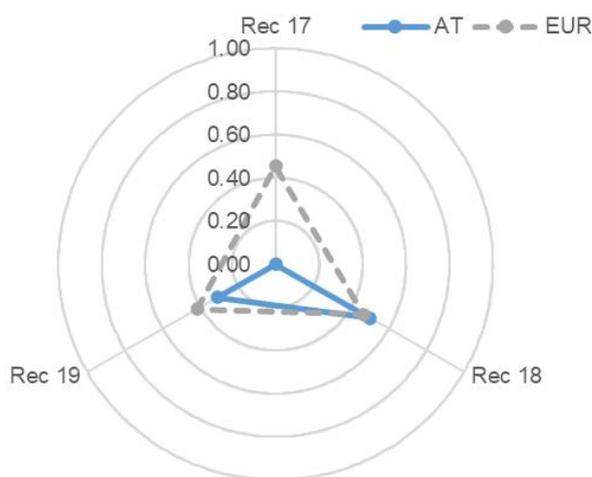
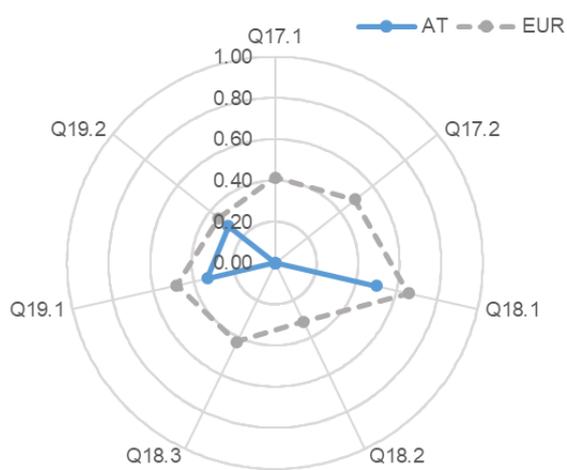


Figure 18 - Governance, Partnerships and Capabilities - scores by recommendation

Concerning governance ([Recommendation 17](#)), the joint leadership on leading and coordinating the implementation of policies on the role of location information in digital government is weak. Mechanisms to consult relevant stakeholders for decision-making on the SDI have not been put in place, possibly also due to the ongoing COVID-19 pandemic that has significantly impacted on several communication activities.

Formal agreements between public authorities in the country to finance and operate location-based services exist for a limited number of services ([Recommendation 18](#)). Agreements with public authorities in other countries and with the private sector are not known to date.

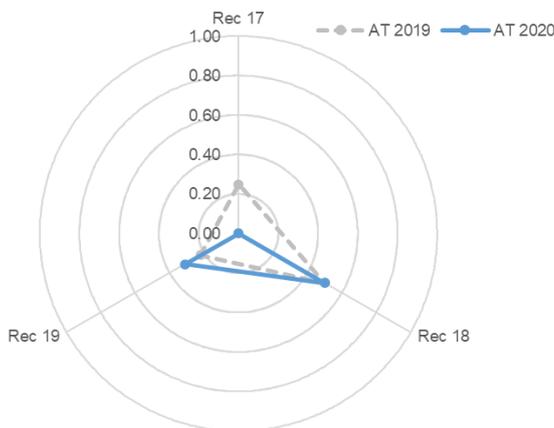


The initiatives on training and awareness raising ([Recommendation 19](#)) include:

- training for specialists, e.g. developers, data analysts;
- special interest group for knowledge sharing within the geospatial community;
- public or cross-government events specialising in location information / GI topics;
- INSPIRE training modules.

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

### 3.6.2 2019/2020 Comparison



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

As already described in the [Overview](#), and shown in [Figure 20](#), the country has significantly weakened its positioning in this focus area compared with 2019.

The largest variance concerns [Recommendation 17](#). In 2020, the country has reported limited engagement of relevant stakeholders in decision making on the SDI and a very weak joint leadership and coordination on policies and actions related to the role of the SDI in Digital Government. On the contrary, in 2019, consultation mechanisms with relevant stakeholders were in place; this engagement channel

may have been heavily impacted by the ongoing COVID-19 crisis.

The LIFO 2020 data collection reports only a limited number of formal agreements between Austrian public authorities to finance, build and operate location-enabled public services ([Recommendation 18](#)). This compares with a larger number of such agreements reported in 2019. No cross-border agreements are reported in 2020, while at least some of them were reported in 2019.

Concerning [Recommendation 19](#), compared with 2019, the strategic approach to leverage the skills for innovative geospatial solutions, has passed from very little training to a more specific training on geospatial skills undertaken by organisations to meet needs. Moreover, in 2020 Austria has implemented some new types of initiatives to raise awareness and develop geospatial skills, indeed they have increased from two to four in 2020.

## 4. Best practices

<b>Best Practice AT1</b>	<b>Cross-border management of Lake Constance area</b>
<b>Policy domain:</b> Cross-border Cooperation	
<b>Process owners:</b> Federal Office for Metrology and Surveying – BEV	
<b>Short description:</b> Lake Constance forms the centre of a cross-border natural and economic region, involving Austria, Germany and Switzerland. The surveying administrations involved in the management of Lake Constance area are: the State Office for Geographic Information and State Development Baden-Württemberg (Germany); the State Office for Digitization, Broadband and Surveying (Germany); the Federal Office for Metrology and Surveying – BEV (Austria); the Federal Office for Topography (Switzerland). These organisations are responsible for the national management and provision of the spatial reference, the landscape models, national maps, aerial photos, elevation and gravity models as well as the property register. In 2002, a permanent working group on the Lake Constance geodata was set up to deal with the cross-border issues. This group makes analysis, processes pilot projects and provides suggestions for solutions to improve cross-border cooperation and the cross-border use of data through the coordination of processes, the harmonisation of databases and the impetus for new applications.	
<b>Recommendations:</b> <a href="#">Digital Government Integration (7)</a> , <a href="#">Governance, Partnerships and Capabilities (18)</a>	
<b>Link:</b> <a href="http://www.bodensee-map.net">http://www.bodensee-map.net</a>	
<b>Best Practice AT2</b>	<b>List of applications reusing open data</b>
<b>Policy domain:</b> Geospatial / ICT	
<b>Process owners:</b> Open Government Data Austria Cooperation (Federal Chancellery, the cities of Vienna, Linz, Salzburg and Graz)	
<b>Short description:</b> The section in the Austrian open data portal dedicated to applications provides a list of applications that use open data made available by the public sector. Almost 500 applications, created by external parties, are listed, reusing open data from more than 30 sources. For each application, the following information is provided: a short description, the records and/or services used, the link to the application, the contact points and the link to the source code, whenever available. Many of these applications are based on location data and services.	
<b>Recommendation(s):</b> <a href="#">Digital Government Integration (7, 8)</a> ; <a href="#">Standardisation and Reuse (12)</a> ; <a href="#">Return on Investment (16)</a>	
<b>Link:</b> <a href="https://www.data.gv.at/anwendungen/">https://www.data.gv.at/anwendungen/</a>	
<b>Best Practice AT3</b>	<b>Geodata and INSPIRE at Statistics Austria</b>
<b>Policy domain:</b> Geostatistics	
<b>Process owner:</b> Statistics Austria	
<b>Short description:</b> Regional and local structures (e.g. municipal boundaries, political districts) as well as functional spatial structures (e.g. census districts, settlement units) are required to generate statistics. These geodata, which can be used for the analysis and	

presentation of statistical information, are now made available free of charge via Statistics Austria's open data portal. They can be accessed through a single page on the Statistics Austria website and are represented with their respective consistent set of metadata.

The relevant datasets are:

- political districts;
- municipalities;
- statistical census districts;
- regional constituencies;
- labour market districts;
- tax office areas;
- judicial districts;
- NUTS units;
- settlement units;
- permanent settlement areas;
- main and small agricultural production areas;
- regional statistical grid units.

Statistics Austria also makes available relevant INSPIRE spatial data through its [discovery service](#).

**Recommendation(s):** [Digital Government Integration \(9\)](#); [Standardisation and Reuse \(12\)](#)

**Link:** [https://www.statistik.at/web\\_de/services/geodaten/index.html](https://www.statistik.at/web_de/services/geodaten/index.html); [https://www.statistik.at/web\\_en/publications\\_services/inspire/index.html](https://www.statistik.at/web_en/publications_services/inspire/index.html); <https://data.statistik.gv.at/web/catalog.jsp>

## Best Practice AT4 Assistance centre for the implementation of INSPIRE

**Policy domain:** INSPIRE

**Process owner:** Statistics Austria

**Short description:** The Centre provides support to the INSPIRE coordination office, to the authorities responsible for the implementation of the INSPIRE Directive and, where necessary, for relevant public spatial data centres.

Its main tasks are:

- support in the technical implementation of the INSPIRE requirements;
- identification and evaluation of spatial data sets and services;
- monitoring;
- metadata capture;
- compliance of metadata and network services;
- practical technical assistance for harmonisation;
- advisory activities;
- helpdesk function for Austrian geo-data points;
- establishment of working groups on various topics.

In implementing these tasks, the platform also helps in clarifying how to best exploit the INSPIRE infrastructure to achieve benefits beyond the mere legal compliance.

**Recommendation(s):** [Digital Government Integration \(7\)](#); [Return on Investment \(15\)](#), [Governance, Partnerships and Capabilities \(17\)](#)

**Link:** <https://assistenzzstelle.inspire.gv.at/>

## List of abbreviations and definitions

### Abbreviations

Abbreviation	Meaning
API	Application Programming Interface
BEV	Bundesamt für Eich und Vermessungswesen
DCAT-AP	Data Catalogue vocabulary – Application Profile
EIF	European Interoperability Framework
ELISE	European Location Interoperability Solutions for e-Government
EULF	European Union Location Framework
GDF	Geographic Data Files
GDPR	General Data Protection Regulation
GI	Geographic Information
G2B	Government to Business
G2C	Government to Citizen
G2G	Government to Government
ICT	Information and Communication Technology
IHO	International Hydrographic Organisation
INSPIRE	Infrastructure for Spatial Information in the European Community
ISA <sup>2</sup>	Interoperability Solutions for European Public Administrations, Businesses and Citizens Programme
ISO	International Standard Organisation
LIFO	Location Interoperability Framework Observatory
NUTS	Nomenclature of territorial units for statistics
NGO	Non-Governmental Organisation
NIFO	National Interoperability Framework Observatory
OGC	Open Geospatial Consortium
SDI	Spatial Data Infrastructure
SDMX	Statistical Data and Metadata eXchange

## 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.	<a href="https://joinup.europa.eu/application-programming-interface">Application Programming Interface   Joinup (europa.eu)</a>
Authentic data	Data that provides an accurate representation of reality with quality parameters that are fit for the intended purposes.	<a href="https://joinup.europa.eu/authentic-data">Authentic data   Joinup (europa.eu)</a>
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.	<a href="https://joinup.europa.eu/authoritative-data">Authoritative data   Joinup (europa.eu)</a>
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.	<a href="https://joinup.europa.eu/high-value-dataset">High Value Dataset   Joinup (europa.eu)</a>
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.	<a href="http://ggim.un.org/meetings/GGIM-committee/documents/GGIM5/E-C20-2015-4%20Fundamental%20Data%20Themes%20Report.pdf">http://ggim.un.org/meetings/GGIM-committee/documents/GGIM5/E-C20-2015-4%20Fundamental%20Data%20Themes%20Report.pdf</a>
Digital government	Government designed and operated to take advantage of information in creating, optimising, and transforming, government services.	<a href="https://joinup.europa.eu/digital-government">Digital government   Joinup (europa.eu)</a>

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	<a href="#">Commission Implementing Regulation (EU) 2016/7 of 5 January 2016</a>
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.	<a href="#">Evidence-based policy making   Joinup (europa.eu)</a>
GeoDCAT-AP specification	Data Catalogue vocabulary (DCAT) Application Profile extension for describing geospatial datasets, dataset series, and services.	<a href="#">GeoDCAT-AP   Joinup (europa.eu)</a>
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.	<a href="#">LIFO Guidelines and Recommendations</a>
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.	<a href="https://joinup.ec.europa.eu/collection/european-union-location-framework-eulf/document/recommendation-6">https://joinup.ec.europa.eu/collection/european-union-location-framework-eulf/document/recommendation-6</a>
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	<a href="#">LIFO Guidelines and Recommendations Unlocking the Power of Location: The UK's geospatial strategy 2020 to 2025</a>
Location information strategy	A strategic approach for managing and maximising the value of location information.	<a href="#">Location information strategy   Joinup (europa.eu)</a>

Term	Meaning	Link
OpenAPI	Specification for machine-readable interface files for describing, producing, consuming, and visualising RESTful web services.	<a href="https://swagger.io/specification/">https://swagger.io/specification/</a>
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 non-contributors alike. Prominently used for the development of open source software.	<a href="https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1096442">https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1096442</a>
Open licence	An open licence is a way for the copyright holder (creator or other rightholder) 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.	<a href="https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-c/important-contractual-provisions/open-licence-intellectual-property-rights_en">https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-c/important-contractual-provisions/open-licence-intellectual-property-rights_en</a>
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.	<a href="https://docs.oracle.com/javaee/6/tutorial/doc/gijqy.html">https://docs.oracle.com/javaee/6/tutorial/doc/gijqy.html</a>
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).	<a href="https://inspire.ec.europa.eu/call-facilitators-%E2%80%93-thematic-clusters/50">https://inspire.ec.europa.eu/call-facilitators-%E2%80%93-thematic-clusters/50</a>
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'.	<a href="#">Spatial Data Infrastructure   Joinup (europa.eu)</a>

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## Annex 1: LIFO 2020 Scoring methodology

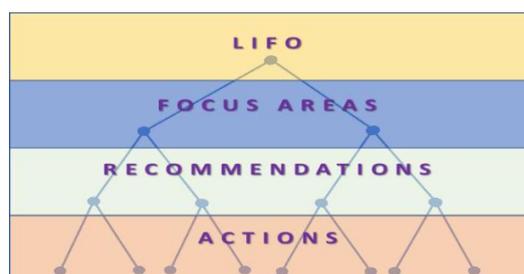


Figure 21 - Hierarchy of indicators and indexes

The LIFO model, described in the *LIFO 2020 Guidelines and recommendations*<sup>33</sup>, 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 actions<sup>34</sup> 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.

<sup>33</sup> [https://joinup.ec.europa.eu/sites/default/files/inline-files/2020\\_LIFO\\_Guidelines\\_2.pdf](https://joinup.ec.europa.eu/sites/default/files/inline-files/2020_LIFO_Guidelines_2.pdf)

<sup>34</sup> 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?	
<b>Recommendation 4</b>			
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?	
<b>Recommendation 5</b>			
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?	

<b>Focus Area: Digital Government Integration</b>			<b>Changes vs 2019</b>
<b>No.</b>	<b>Indicator</b>	<b>Question</b>	
<b>Recommendation 6</b>			
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
<b>Recommendation 7</b>			
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 following five actions in the INSPIRE country fiche: <ul style="list-style-type: none"> <li>- Availability of spatial data and services</li> <li>- Conformity of metadata</li> <li>- Conformity of spatial data sets</li> <li>- Accessibility of spatial data sets through view and download services</li> <li>- Conformity of the network services</li> </ul>	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?	
<b>Recommendation 8</b>			
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
<b>Recommendation 9</b>			
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?	

<b>Focus Area: Standardisation and Reuse</b>			<b>Changes vs 2019</b>
<b>No.</b>	<b>Indicator</b>	<b>Question</b>	
<b>Recommendation 10</b>			
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
<b>Recommendation 11</b>			
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?	
<b>Recommendation 12</b>			
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 to INSPIRE implementing rules and technical guidelines (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)	
<b>Recommendation 13</b>			
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?	
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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	
<b>Recommendation 17</b>			
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 location information in Digital Government?	Multiple choice in 2019, single choice in 2020
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
<b>Recommendation 18</b>			
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?	
<b>Recommendation 19</b>			
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 2019<sup>35</sup>, with the aim to improve the capability of the LIFO model to represent consistently the state of play of

<sup>35</sup> 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>

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:
  - 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: Austria

Title	Attachment <sup>36</sup>
LIFO Survey questionnaire 2020 – Austria	 LIFO Survey 2020 Austria
LIFO Survey questionnaire 2020 scores and charts – Austria	 LIFO 2020 scores and charts Austria

FOCUS AREA	AT 2020 v AT 2019			AT 2020 v EUR 2020 (all countries)			AT 2020 v EUR 2020 (2019 countries)			AT 2019 v EUR 2019		
	AT 2019	AT 2020	+/-	EUR 2020	AT 2020	+/-	EUR 2020	AT 2020	+/-	EUR 2019	AT 2019	+/-
Policy and strategy alignment	0.55	0.53	-0.02	0.62	0.53	-0.09	0.68	0.53	-0.15	0.57	0.55	-0.01
Digital government integration	0.57	0.50	-0.07	0.57	0.50	-0.07	0.59	0.50	-0.09	0.54	0.57	0.03
Standardisation and reuse	0.63	0.56	-0.07	0.55	0.56	0.01	0.62	0.56	-0.06	0.54	0.63	0.10
Return on investment	0.45	0.56	0.11	0.58	0.56	-0.02	0.64	0.56	-0.08	0.60	0.45	-0.15
Governance, partnerships and capabilities	0.32	0.27	-0.05	0.45	0.27	-0.18	0.49	0.27	-0.22	0.44	0.32	-0.11
LIFO INDEX	0.51	0.48	-0.03	0.55	0.48	-0.07	0.60	0.48	-0.12	0.54	0.51	-0.03

<sup>36</sup> 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.