



INSPIRE

Infrastructure for Spatial Information in Europe

Work Programme for the implementation and evolution of the INSPIRE Directive for the period from 2020 – 2024 (WP 2020)

Working title: “Towards a Common European Green Deal data space for environment and sustainability”

Type	Draft for MIG ¹ discussion and endorsement
Creator	EC and EEA INSPIRE Team
Date/status/version	18/02/2020 / DRAFT / version 1.0
Addressee	MIG (for discussion and endorsement)
Identifier	MIG/11/2020/DOC4
Description	This document is presented for discussion and endorsement at the MIG meeting.

Requested actions: The members of the MIG are invited to:

- Discuss and provide feedback on the WP 2020-2024 during the 11th meeting of the MIG .
- Endorse the WP 2020-2024

Conclusions:

¹ MIG and MIG-T are the official MS expert groups that are mandated to support the implementation of the INSPIRE Directive. The MIG-T is the technical group and the MIG is the policy group that ultimately decides on the work programme.

Work Programme for the implementation and evolution of the INSPIRE Directive for the period from 2020 – 2024 (WP 2020)

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Disclaimer:

This document is a joint, consensual and voluntary work programme endorsed by the competent authorities of the EU Member States, the Commission (DG ENV, DG JRC and DG ESTAT), the European Environment Agency and experts from other countries (in particular Norway and Iceland) for the INSPIRE Directive. It is a commitment to work together at EU level to close existing implementation gaps and reap the benefits of the INSPIRE Directive and complements positively (not replaces) all the significant national efforts and strategies. This document does not alter in any way the legal obligations set out by the Directive.

The document aims at framing and mandating the work in the MIG from 2020 onwards. This document will be reviewed, and if necessary revised, at the next meeting of the MIG (foreseen in November 2020).

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1 Background and context

The overall objective of Directive 2007/2/EC (INSPIRE) is to establish an European spatial data infrastructure for the purposes of EU's environmental policies and policies or activities which have an impact on the environment (Article 1 of INSPIRE Directive 2007/2/EC). This will enable the better sharing of environmental spatial information among public sector organisations and better facilitate public access to spatial information across Europe which will benefit citizens and businesses alike. With only two implementation deadlines remaining (interoperability for Annex II and III spatial data sets – 21/10/2020, interoperability for invocable spatial data services – 10/12/2021) the implementation of the INSPIRE Directive has entered the last mile.

In 2016 the Commission concluded the mid-term evaluation and REFIT² of Directive 2007/2/EC (INSPIRE). This evaluation of the INSPIRE Directive confirmed that the overall relevance of the Directive to meeting policy needs in an efficient manner remains high, and was expected to increase with time, given the drive towards a digital economy which includes important elements of the Directive. Good progress in implementation was made in only the few Member States where the necessary investments were made and the implementation of the Directive was aligned with wider national action on open data policies and eGovernment services. The implementation gaps identified were significant and resulted from accumulated delays in the process, underlining the differences in speed and quality of implementation. As a result, overall effectiveness has suffered. In particular, data policies in many Member States impeded effective progress and created administrative burden because data cannot be easily shared between administrations. A large diversity existed throughout the EU and there was no country which had fully implemented the Directive related to those deadlines that had already expired. The Maintenance and Implementation Work Programme 2017-2020 responded to these findings and the recommendations made by the Commission.

The Commission initiated a number of actions at EU level to improve the implementation and impact of INSPIRE:

- ***Better data access - Evaluate the shortcomings of the national data policies in relation to Article 17 of the Directive in more detail.***

The Commission has launched a study for the 'Evaluation and assessment of INSPIRE Directive 2007/2/EC data sharing between public authorities and public access and use provisions'. The findings of the study show that additional efforts are needed to further harmonise data policies and licenses for data reuse in the Member States. Other remaining obstacles limiting data sharing are the availability of the data itself, broken links and missing services to provide access to the data. This can be improved by further promoting the use of INSPIRE data in practice and demonstrating the added value. The e-Reporting use case and the list of priority data supporting e-reporting are considered good practices to stimulate implementation. Benefits can also be expected from further aligning Article 17 on data sharing of the INSPIRE Directive

² <https://inspire.ec.europa.eu/documents/mid-term-evaluation-report-inspire-implementation>

with the new Directive on Open Data and on the re-use of public sector information. Moreover, the proposed data categories in the foreseen implementing act on High Value Datasets, defined under the Open Data Directive, have a clear overlap with the data scope of the INSPIRE Directive and could benefit from reusing already available spatial data in the INSPIRE infrastructure.

- ***Simplification & flexibility - Review, and possibly revise, the INSPIRE rules, in particular on monitoring, reporting and spatial data harmonisation, to take into account the implementing risks and complexities with a view to reducing them (simplifying requirements).***

Experience from the previous reporting exercises and the conclusions of recent evaluations (REFIT evaluation of Directive 2007/2/EC and the Fitness Check on reporting and monitoring of EU environment policy) have shown the need to simplify and streamline monitoring and reporting, support better comparison of the implementation progress across Member States and allow for National and EU-wide overviews while reducing administrative monitoring and reporting burden. Monitoring and reporting has been aligned and streamlined by simplifying the legal provisions and amending the related Implementing Decision to make it more meaningful and effective. The Proposal on alignment of reporting obligations in the field of environment policy³ was adopted by the Council on 21 May 2019. The proposal for a review of the reporting Decision⁴ was adopted by the INSPIRE Committee on 27 November 2018 and will be put forward for adoption by the College begin of June 2019. MS will report under the new regime from 15 December 2019 onwards and the Commission (JRC) is developing a reporting tool which will make the whole monitoring and reporting process much more effective and efficient. Furthermore, the Commission has gathered evidence in 2017-2018 on possible issues/improvements to the INSPIRE framework. The findings have been discussed with Member State experts and the Commission will take the advice from the Member States expert group in consideration in the review of the interoperability regulation. The evidence gathering is now completed and the issues identified are now being translated in to revision of the existing regulation. This will make the application of the data specifications easier, more flexible and less burdensome without losing the benefits of standardisation and interoperability. The intention is to adopt a revised Regulation in 2020.

- ***Prioritization - Assist the Member States in applying and implementing the INSPIRE Directive (simplification of use), e.g. by the use of common tools, and promote priority setting together with the Member States.***

The Commission has selected monitoring and reporting under the environmental acquis as a priority use case for the development of a first set of pan-European information products. Based on the evaluation of reporting obligations under the environmental legislation, a preliminary list of common datasets related to environmental reporting obligations was prepared by the Commission in collaboration with the Member States (<https://ies-svn.jrc.ec.europa.eu/projects/2016-5/wiki>).

³ <https://ec.europa.eu/info/news/environmental-data-commission-welcomes-council-adoption-new-rules-reduce-red-tape-and-increase-transparency-citizens-2019-may-21>

⁴ http://ec.europa.eu/transparency/regcomitology/index.cfm?do=search.documentdetail&Dos_ID=16928&ds_id=59505&version=1&page=1

The number of environmental priority datasets in the INSPIRE catalogue made accessible by Member States is slowly but gradually increasing (see latest situation at: http://inspire-geoportal.ec.europa.eu/pdv_home.html). Those Member States which have, so far, not engaged in this exercise are clearly in breach of the INSPIRE Directive and after several reminders, a first wave of infringements (against BG, LV, LT, PL) has been initiated with a letter of formal notice on 8 March 2019.

The progress made by the Member States vis-à-vis the follow-up actions identified in the REFIT is documented in country fiches (<https://inspire.ec.europa.eu/portfolio/inspire-your-country>) and a comparative EU overview fiche (<https://inspire.ec.europa.eu/documents/summary-report-status-implementation-inspire-directive-eu>).

The reengineered INSPIRE Geoportal (<http://inspire-geoportal.ec.europa.eu>), that was released in September 2018, provides an online dashboard that allows for assessing the actual state of implementation in the Member States as well as simplifies substantially the discovery and use of MS data. The first Geoportal Workshop in January 2019 triggered an intensive dialogue with Member State experts about how to improve the availability as well as the usability of their data via the EU Geoportal. The discussion has intensified with the new Commission Decision on Monitoring and Reporting that reduced the number of monitoring indicators, but at the same time introduced new ones (e.g. Priority data sets, data downloadability, national / regional datasets) and requires the indicators to reflect the real status of the data availability in the EU Geoportal.

The definition of the list of priority data sets to support environmental reporting and the request to make these data sets available as-is (as-is = metadata available in the EU geoportal and data accessible for download and view), created a clear implementation scope and focus. However, even with such clear directions, many Member States are still having difficulties to identify and make available the requested data sets. Moreover, the findings of the study “Promotion of good practices for national environmental information systems and tools for data harvesting at EU level” and recent discussions with the Member State INSPIRE representatives (MIG, MIG-T) related to data availability and usability revealed some national practices that were not at all anticipated by the INSPIRE Directive. Many Member States are developing a separate Spatial Data Infrastructure (or at least separate data sets and services) specifically to comply with the obligations of the INSPIRE Directive, while at the same time maintaining and even further developing the national Spatial Data Infrastructure. This goes against the philosophy of the INSPIRE Directive where clearly is stated in Article 1(2) that “Inspire shall build upon infrastructures for spatial information established and operated by the Member States”. Duplicating national Spatial Data Infrastructures to satisfy INSPIRE obligations creates inefficiencies, unnecessary implementation burden and is not sustainable in the longer term, which limits possible reuse (e.g. new innovative services based directly on the infrastructure).

At the same time, there are a number of recent Commission activities that create high expectations on the usability of the INSPIRE data infrastructure. These include the recent European Data Strategy⁵,

⁵ https://ec.europa.eu/info/sites/info/files/communication-european-strategy-data-19feb2020_en.pdf

the revised Open Data and PSI Directive⁶ introducing the concept of High Value Data Sets, the increased demand for spatial data in scope of the INSPIRE Directive from other Commission DGs in various thematic domains (AGRI, GROW, ENER, MOVE, ESTAT), and the Commission-internal initiative to become more data-driven (EC Data Strategy).

Taking all this into account, the Commission invites the Member States to continue the successful collaboration within the Maintenance and Implementation Framework (MIF) which was established following the adoption of the Directive to support the implementation efforts proactively and collaboratively. In operational terms, this would require an update of the Work Programme for the INSPIRE Directive (WP).

This document responds to this call and prepares a renewed WP building on the existing one (MIWP2016-2020⁷). In view of the planned evaluation of the INSPIRE Directive by 2022 and the changing context driven by a new political reality, the WP shall follow a two-step approach. As a first step, the new WP should take the implementation of the INSPIRE Directive to an implementation across Europe with comparable maturity levels regarding data availability and accessibility by end of 2022, a common implementation “landing zone”. This landing zone would be the starting point for the further evolution of the legal framework beyond 2022 and the development of the European spatial data infrastructure in line with the new European strategy for data and the political guidelines in support of the objectives of the European Green Deal. The WP 2020-2024 will transform the INSPIRE Directive and its implementation into a digital ecosystem for environment and sustainability that is fully integrated in the Common European Green Deal data space envisaged in the European Data Strategy.

It is clear, however, that the WP will have to undergo a regular review and, if necessary, adaptation to the changing situations induced by the outcome of the evaluation of the Directive and the possible fitness check of the legal framework. Therefore, the document sets out the context for the new WP (this section), establishes a strategic direction (section 2), identifies key areas of work (section 3), strengthens the stakeholder engagement (section 4), discusses practical arrangements (section 5), and concludes including provisions for a regular review mechanism (section 6).

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1561563110433&uri=CELEX:32019L1024>

⁷ <https://webgate.ec.europa.eu/fpfis/wikis/x/7IRDE>

2 Strategic direction towards need driven implementation

The overarching **vision** for a European spatial data infrastructure for the purposes of EU's environmental policies and policies or activities which have an impact on the environment (Article 1 of INSPIRE Directive 2007/2/EC) has not changed since the inception of the Directive, and is to **promote data sharing** and put in place easy-to-use, transparent, **interoperable spatial data services** which are used in the daily work of environmental policy makers and implementers **across the EU at all levels of governance** as well as businesses, science and citizens to help improving the quality of the environment and leading to effectiveness gains and more simplification.

In June 2019 the Commission organised a **workshop** with the Member States about the **future of the INSPIRE** Directive beyond its implementation scope. Ideas were developed and exchanged on the short term (2022-2024) and the long term (2030) future for the INSPIRE directive. The workshop resulted in some very clear recommendations for the future development of the Directive:

- New data sources should be included (3D, linked data, IoT data ...). It was recommended to go beyond spatial data and to seek synergies with non-spatial data activities.
- The further implementation (data and services availability, accessibility and interoperability) of the Directive should be driven by a real demand and use cases.
- Implementation should speed up. We should do less things, but do them quicker.
- The technical implementation framework should be completely technology neutral and should avoid implementation requirements that lead to specialised software developments. Implementers should have the option to deploy off-the-shelf tools.

More recently, **Commission President von der Leyen** stressed the need for Europe to lead the transition to a healthy planet and a new digital world in her **political guidelines**. This twin challenge of a green and digital transformation has to go hand-in-hand and direct us towards more sustainable solutions which are resource-efficient, circular and climate-neutral. Data is at the centre of this transformation and data-driven innovation will contribute to the implementation of the objectives of the **European Green Deal**. To use the major potential of data in support of the Green Deal priority actions on climate change, circular economy, zero pollution, biodiversity, deforestation and compliance assurance, a Common European Green Deal data space will be developed. DG ENV's centerpiece action to develop this **Green data space** will be a "**GreenData4All**" initiative, which (following an evaluation/impact assessment) will aim to review and possibly revise two pieces of existing legislation:

- The Access to Environment Information Directive (2003/4/EC);
- The INSPIRE Directive (2007/2/EC) dealing with geospatial data for the environment;

The overall objective is to ensure that the most modern and innovative technologies are used to deliver on our basic European values of transparency and democracy, help channel the energy from EU citizens to contribute to European Green Deal solutions and minimize administrative burden by using less paper and more digital solutions.

Looking back on the past implementation cycle of the Directive, we can conclude that a **coherent legal framework** for the INSPIRE Directive was put in place. The implementation progress since 2016 is encouraging but what have we really achieved by now? What benefits did this have for the environment, citizens and businesses? **Implementation is still delayed** and gaps are only closing

slowly. There is need for more work on data sharing and continued work on increased flexibility. Implementation in Member States still happens at different speeds and levels of engagements. The INSPIRE case is in theory still more convincing than in practice (e.g. limited number of real cases where INSPIRE is used at level of impact assessments or inspection) and we still have to move from a “proof of concept” to a “game changer” across all domains (e.g. difficulties of building demonstrators, availability of quality priority data across EU27 is still low, ...). As already indicated by Member State experts on several occasions, there is very little use for parallel INSPIRE spatial data infrastructures on the national level. The lack of interest beyond satisfying the legal obligations in many cases results in little maintenance and updates of these parallel implementations. The resulting heterogeneous implementations and offerings of spatial data across Member States do not provide a useful data repository for EU level applications either.

Given the significant scope and ambition of the INSPIRE Directive, the implementation process would overall benefit from a stricter EU priority setting regarding data scope and harmonisation. This would allocate the limited resources on those issues with highest priority and where tangible benefits for environment policy and the implementation of the European Green Deal can be expected. It would also strengthen the cross-border and EU dimension of the INSPIRE Directive implementation because interoperability can only be successful if all partners (EU, national, regional and local administrations) share the same priorities so that we all “pull in the same direction”.

*Further needs to simplify and mainstream the technical requirements of the INSPIRE Directive will be assessed during the evaluation of the INSPIRE Directive and this analysis can feed in the possible review of the legal framework. At the same time we should already take action to promote and implement the idea of need driven prioritisation and harmonization to improve the INSPIRE implementation for targetted priority eReporting and reference data. This action should be at the core of the first phase (2020-2022) of the WP 2020-2024 and should support the transition towards a better balanced and homogeneous implementation (full implementation for a well-defined set of data, minimal metadata and accessibility for the rest) as **a 2022 landing zone for the implementation of the INSPIRE Directive (Area of work 1)**. The second phase (2022-2024) of the WP 2020-2024 should steer the **transition from the current legal framework to a digital ecosystem for environment and sustainability (Area of work 2)** that is fully integrated in the **European Green Deal data space (Area of work 3)** envisaged in the European Data Strategy in support of the EU Green Deal.*

The main areas of work for the WP 2020-2024 are:

- **Area of work 1: Towards a common implementation landing zone;**
- **Area of work 2: A digital ecosystem for the environment and sustainability;**
- **Area of work 3: Green Data4All.**

This new strategic direction will guide the WP 2020-2024 and should result in immediate actions to demonstrate that the INSPIRE Directive can be implemented in a proportionate, faster and pragmatic way.

3 Working areas and key activities

Building on the above-mentioned specific objectives, three areas of work are defined and the overall activities are outlined. The detailed activities and tasks are set out in the Annex 1 (core activities under the areas of work).

3.1 Area of work 1: “Towards a common implementation landing zone”

This area of work sets the action scope for the first phase (2020-2022) of the WP 2020-2024 and has the objective to support the transition towards a better balanced and homogeneous implementation (full implementation for a well-defined set of data, metadata and data real accessibility for the rest) as a 2022 landing zone for the implementation of the INSPIRE Directive.

To promote and maximize the reuse of already available national spatial data infrastructures as originally intended by the INSPIRE Directive infrastructure the following targeted actions should be considered towards a common implementation landing zone:

- put a need-driven prioritisation and proportionate harmonization in place;
 - Identify a limited core set of data for which full interoperability should be pursued. The priority data sets for reporting⁸, the priority geospatial datasets for the European Commission⁹ and the work on the High Value Dataset implementing act under the Open Data Directive provide a good framework for defining this core set of data and drive this approach.
 - Diversify and where possible relax the technical implementation guidance for what is needed for each data set e.g. every data set needs to have metadata, some selected priority data sets need to be published with INSPIRE services but all data sets should be accessible somehow. And an even more limited number of data sets need to be harmonized based on tangible use cases.
 - Any priority setting approach has its intrinsic logic that one area is prioritised over another but that ultimately, step-by-step, all issues get addressed in a systematic and efficient manner. Any EU priorities complement any national and other priorities which are set elsewhere and do not alter in any way the legal obligations set out by the Directive.
- link the EU geoportal with national geoportals and spatial data infrastructures (SDI's) instead of parallel INSPIRE implementations. Build INSPIRE as a lightweight shell on top of national SDI's facilitating the data discovery, access and guaranteeing the level of interoperability where needed by dedicated use cases;
- eliminate INSPIRE specific extensions to metadata and services to support off the shelf software;

⁸ <https://webgate.ec.europa.eu/fpfis/wikis/x/W4LdEQ>

⁹ https://ies-svn.jrc.ec.europa.eu/attachments/download/2536/%5BDOC11_rev%5D_Priority%20Geospatial%20Datasets%20for%20the%20European%20Commission.pdf

- support further integration and synergies with other EU activities e.g. the European Data Portal, INSPIRE@EC, Reportnet3.0, without sacrificing the level of functionality and transparency in the current INSPIRE EU geoportal.

These targeted actions should by 2022 contribute to the more generic objectives to:

- close remaining implementation gaps and address upcoming implementation challenges in the most effective, efficient and pragmatic manner;
- deliver added value for environmental policy makers and implementers across the EU at all levels of governance create by using a need driven approach and an end-user perspective;
- improve access to information and thereby promote business opportunities, transparency and accountability which is essential for public administrations, businesses, science and civil society alike.

Two dedicated actions are being proposed to prepare the transition to a need driven implementation for the 2022 landing zone. A dedicated WP action is proposed to define fit for purpose interoperability and accessibility levels for prioritised and non-prioritised data and services within the boundaries of the existing legislation. A second dedicated WP action is proposed to complete the list of priority data with core data and high value data.

In preparation of a possible review of the legal framework, the implementing acts implementing the Directive regarding Network Services and Metadata and the corresponding technical guidelines will be screened to identify areas where most gains could be harvested by simplification, streamlining with other digital initiatives and updating to the contemporary state of technology.

To strengthen the end-user perspective and the need driven approach, user feedback and input will be gathered continuously through the INSPIRE Community Forum and more procedural through the data request procedure and later through the performance of the European Green Deal data space. This user feedback will be regularly discussed in the MIG in view of needed complementary actions in the Work Programme.

3.2 Area of work 2: "A digital ecosystem for the environment and sustainability"

The second phase (2022-2024) of the WP 2020-2024 should steer the transition from the current legal framework and its implementation to a digital ecosystem for environment and sustainability that is fully integrated in the European Green Deal data space envisaged in the European Data Strategy in support of the EU Green Deal. The actions under this area of work will follow the evolution of the framework for the development of the common European Data space and will respond to the outcome of the review and possible revision of the INSPIRE legal framework under the "Green Data4All" initiative (see Area of work 3). Consequently, the main set of implementation activities in this area of work will start after 2022 when the architecture of the common European data space and the direction of the evolution of the INSPIRE legal framework have crystallised. **This area of work will continue the implementation starting from the 2022 implementation landing zone (see Area of work 1) and will implement the digital ecosystem for the environment and sustainability regulated under the "Green Data4All" initiative** as one of the main components for the European Green Deal data space. Other components of the European Green Deal data space are

the roll out of re-usable data-services on a large scale, the establishment of a common European data space for smart circular applications, a pilot for early implementation of the data strategy in the context of the 'zero pollution ambition' and the launch of the 'Destination Earth' initiative (digital twin). Preparatory work to create a common understanding of such a digital ecosystem for the environment and sustainability can start in 2020 and could feed in the possible review of the legal framework.

In its Data Strategy the Commission promotes the development of a common European data space to support the development of a data economy and to increase data use across the EU. This common European data space would be established on two mutually reinforcing pillars:

1. A horizontal data governance framework (the overall ***common European data space***), providing a set of rules applicable to different types of data and different contexts of data re-use, consisting of both legislative and non-legislative elements. This framework will inform the second pillar of the strategy, which is the creation of ***common European data spaces at the sectoral level***.
2. The common European data spaces are meant to support the aggregation of data from across Europe, both for the public sector and for businesses, and make them available for the development of new products and services, leveraging cloud infrastructures where needed. The notion of common European data spaces includes four dimensions:
 - the necessary IT systems (digital industrial and personal data platforms);
 - domain-specific data governance frameworks as articulations of the overall technical governance framework for data to be established at the EU level;
 - enabling standards, including semantic standards and interoperability protocols – both domain-specific and crosscutting;
 - enabling competitive and seamless access and use of cloud infrastructures and services through the deployment of pan-European cloud federations.

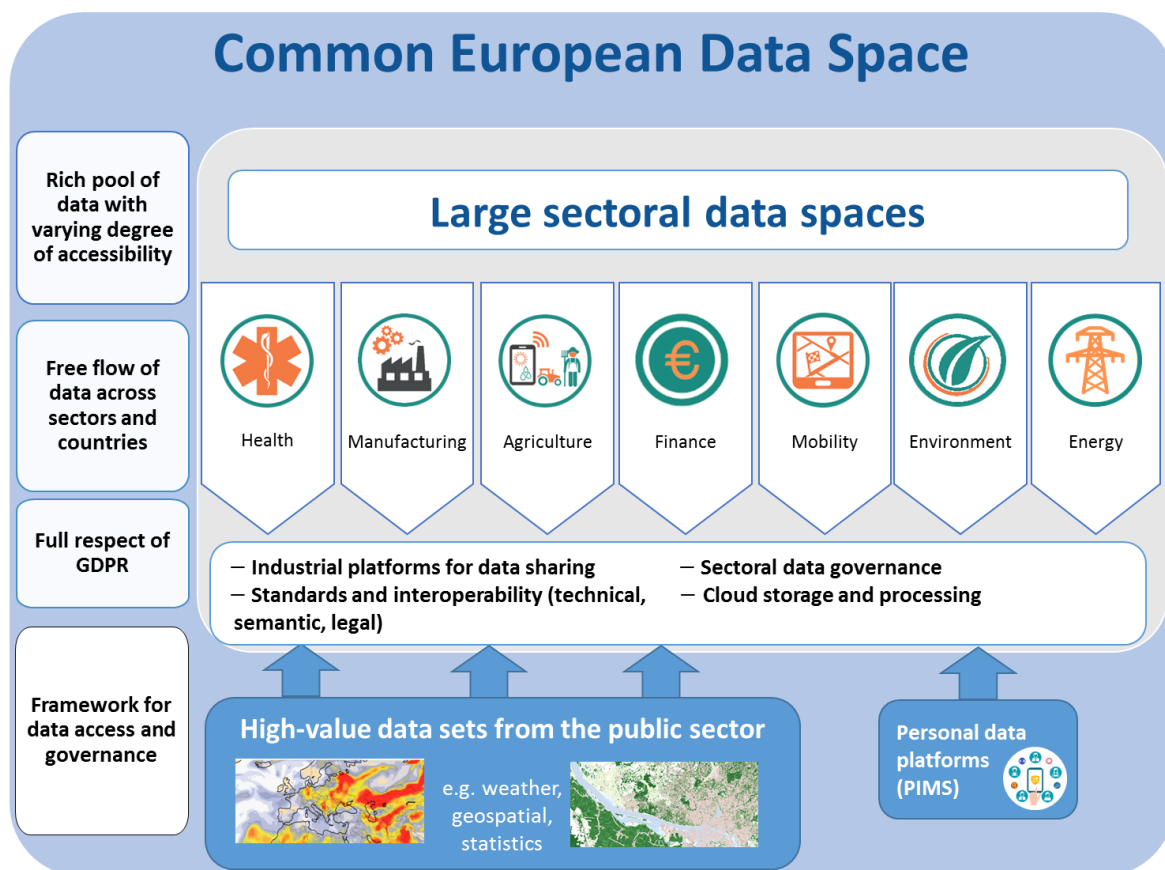


Figure 1: Elements of a common European Data Space (source DG CNECT)

The digital ecosystem for the environment and sustainability will be a cornerstone component of the envisaged Green Deal data space. Together with other digital ecosystems under the Green deal data space (e.g. Circular Economy, Climate adaptation ...) and other components (digital twin, knowledge, research, financing ...) it will contribute to the development of a European Green Deal data space as a subset of the common EU data space that is interoperable with other sectoral data spaces allowing transparent and seamless exchange of data. It will have elements from and links to all the sectors as identified in Figure 1.

In building the future digital ecosystem, four building blocks¹⁰ need to be addressed:

Data

- Data standards and quality assurance
- Data validation guidelines
- Data management (storage, curation, preservation)
- Core reference data and core environmental data
- Open Data

¹⁰ Adapted from UN environment discussion paper “The case for a digital ecosystem for the environment”

Infrastructure

- Data management, semantic mapping
- Integration of data, harmonisation
- Access to data: near real time data through APIs, web services
- Data processing

Analysis

- Transparent, QA data analytics and algorithms
- Verification of methods
- Shared, open algorithms
- National co-validation

Applications

- Tools matching policy needs with actionable info
- User app, dashboards (tailor made for different user types)
- Tools monitoring environmental impact

When developing these activities, the following challenges have to be managed

- Access to datasets, governance of datasets
- Quality, transparency, openness of data and algorithms
- Protecting privacy, security, intellectual property
- Environmental impact of the digital ecosystem e.g. related to resource usage (“Greening the green dataspace”)

Three main actions are proposed to prepare the grounds for the development of the digital ecosystem for the environment and sustainability.

- An umbrella action that monitors the evolution of the European Data and Digital Strategies in general and the Green Dataspace in specific to achieve full convergence and streamlining.
- An action to define in detail the digital ecosystem (components, governance, financing, stakeholders, capacity ...).
- An action for awareness and capacity-building to promote the concepts and implementation of the digital ecosystem.

3.3 Area of work 3: "Green Data4All"

The “Alignment” Regulation 2019/1010¹¹ that was adopted in May 2019 mandates the Commission to carry out an evaluation of the INSPIRE Directive no later than 1 January 2022 and at least every five years thereafter. **The MIG’s direct involvement in this area of work will be limited and no specific actions have been proposed for the Work Programme for now.** The Commission might seek the opinion of the Member States experts as part of the evaluation consultation strategy and the evidence gathering.

¹¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32019R1010>

To use the major potential of data in support of the Green Deal priority actions on climate change, circular economy, zero pollution, biodiversity, deforestation and compliance assurance, a Common European Green Deal data space will be developed. **DG ENV's centerpiece action to develop this Green data space will be a "Green Data4All" initiative**, which (following an evaluation/impact assessment) will aim to review and if necessary revise two pieces of existing legislation:

- The Access to Environment Information Directive (2003/4/EC);
- The INSPIRE Directive (2007/2/EC) dealing with geospatial data for the environment;

The overall objective is to ensure that the most modern and innovative technologies are used to deliver on our basic European values of transparency and democracy, help channel the energy from EU citizens to contribute to European Green Deal solutions and minimize administrative burden by using less paper and more digital.

The "Green Data4All" initiative is designed to contribute to the Commission's Data Strategy that was published and presented on 19 February 2020.

The new Open Data and the re-use of Public Sector Information Directive (PSI – 2019/1024/EU) has created an ambitious reference point for public data. In the environmental domain, existing provisions already exist since 2003. They are still essential because they enshrine rights (established by the Aarhus Convention and transposed by Directives 2003/4/EC and 2003/35/EC) beyond what is set by the PSI Directive and set out technical details (through the INSPIRE Directive 2007/2/EC) that environmental authorities need to rely upon to share data for the purpose of tackling transboundary environmental problems.

However, these existing Directives are increasingly outdated since they were drafted at a time where the Internet and data management technologies were in their infancy. Moreover, some provisions are obsolete and not fully aligned with the new Open Data Directive. The "Green Data4All" initiative will address these issues and contribute across all environmental areas to help harness the power of big data and artificial intelligence for the benefits of the European Green Deal.

There are many ongoing initiatives (Climate Pact, Digital Europe Programme, High Value Datasets under the Open Data / PSI Directive, etc.) which are relevant and need to be coordinated with the Green Data 4All initiative. The DG ENV contribution under this initiative will focus on a dedicated action which combines Better Regulation duties (to evaluate, simplify and modernise our existing acquis) with the ambition to improving data governance and citizens' engagement for climate and environment policies ready for 2030.

Another element is the need to better use satellite (Copernicus) data for environmental monitoring and compliance assurance. The initiative can also help in the convergence of use of High Performance Computing, cloud, data and Artificial Intelligence resources for earth system modelling¹². The suggestion is to bring together European scientific and industrial excellence to develop a very high precision digital model of Earth ("Digital Twin of the Earth") that will be used to achieve breakthroughs

¹² <https://ec.europa.eu/digital-single-market/en/news/convergent-use-high-performance-computing-cloud-data-and-artificial-intelligence-resources>

in Europe’s climate and environmental prediction and crisis management capabilities. For such an ambition to succeed, the access and sharing of “green data” will need to significantly improve and the updating of the existing legal framework will be essential for that.

3.4 Other activities

The activities under the above working areas are clear priorities resulting in the core set of activities agreed and implemented in the context of the WP 2020-2024. The EU partners (DG ENV, JRC, ESTAT and EEA) will allocate the majority of their resources to implement these core activities and national authorities active in the MIF are called upon to review their investments into the MIF and align them with this WP, as appropriate. However, it is recognised that there are other valuable activities or interests of national experts, e.g. in the context of the Digital Europe Programme or other funded programmes, pan-european and regional initiatives Actions or projects of wider interest can be documented in Annex 2 to the WP 2020-2024. This list is mainly for information purposes and every authority can decide individually in how far it engages and uses the results of such activities and projects.

Whilst the Annex 2 does not form part of the WP 2020-2024, there may be circumstances or particular results which could indeed be valuable for the INSPIRE implementation overall. E.g. it could be envisaged that a particular standard or guidance is considered useful to be applied in the more formal INSPIRE context. Therefore, the procedure for proposing and endorsing good practices¹³ can be used by the stakeholder communities as regards such particular projects or results, utilising the INSPIRE Community Forum to share and discuss. The MIG-T can then evaluate proposals as well as propose new ones. As a result, the MIG could decide to endorse a particular “product” stemming from a project outside the WP and promote it to good practice under the INSPIRE implementation.

¹³ <https://inspire.ec.europa.eu/portfolio/good-practice-library>

4 Stakeholder engagement

The development and implementation of the INSPIRE Directive is characterised by a wide consultative and collaborative approach. With a strong focus on use cases as the driving force for data sharing and interoperability, and good practices as drivers for technical interoperability, the engagement with stakeholders has always been important and will remain increasingly important.

Many actions to engage with a wide group of stakeholders have successfully taken place in the past, e.g. through INSPIRE Community Forum ¹⁴(former Thematic Clusters), workshops, webinars, , Trainings¹⁵ communication material all accessible via INSPIRE Knowledge base¹⁶. In particular the annual INSPIRE Conference¹⁷ which will take place for the 13th time in 2020 has proven to be a widely recognised forum and gathering of the European spatial data community. Despite these efforts and achievements, the engagement with some stakeholder groups has been less successful. Besides the need for a close collaboration with the environmental policy and reporting community to deliver the added value of the INSPIRE Directive in support of the objectives of the European Green Deal and better implementation of environmental legislation, a more systematic and structured engagement with other communities (public and private) engaged in developing the data and digital economy, including the digital innovation communities, should be sought. The needs and use cases of a fast-moving and inclusive digital transition should feed into the further development and implementation of the European spatial data infrastructure to guarantee its fitness for purpose and maximise its reuse.

This extended users and stakeholder focus will also need to be reflected within the specific actions under the work programme. Some organisational aspects of the MIF will be reviewed and the focus of stakeholder engagement will particularly be shifted to the environment and digital policy community in view of the Commission's ambition to develop a European Green Dataspace in which the INSPIRE Directive will play a key role as an instrument to implement the objectives of the European Green Deal.

¹⁴ <https://inspire.ec.europa.eu/forum>

¹⁵ <https://inspire.ec.europa.eu/portfolio/training-library>

¹⁶ <https://inspire.ec.europa.eu/>

¹⁷ <http://inspire.ec.europa.eu/index.cfm/pageid/501>

5 Working arrangements and practicalities

The mandate and the current rules of procedures (RoPs)¹⁸ that were established under the MIWP 2016-2020 and agreed with the MIG continue to apply.

The WP holds no mandate in relation to tasks assigned to the **INSPIRE Committee**. Activities mandated to the Committee are proposed by the Commission and the Committee acts in accordance with its own RoPs and can, of course, decide to make use of the expert structures under the MIG and the Work Programme for preparing certain deliverables that it is mandated to address. The Commission will ensure a smooth functioning between the Committee and the WP actions by ensuring a regular information exchange and by arranging, where and as appropriate, back-to-back meetings of the Committee with the MIG.

The **MIG** is the policy sub-group with particular focus on strategic and political questions and with responsibilities to agree the WP as well as to endorse outcomes of the WP and thereby give them an informal (i.e. not adopted by Commission or Committee) but still official status (i.e. validated by the official Commission INSPIRE Expert Group).

The **MIG-T** is the operational and technical arm for the INSPIRE implementation. Many of the concrete actions are carried out under the remit of the MIG-T. However, the interplay between MIG-T and MIG will be refined, e.g. by sequencing the meetings allowing for appropriate preparation and follow up of the meetings.

It is also common practice to establish dedicated sub-groups for the execution of tasks. As a rule, it is for the MIG, with possibility for suggestions from the MIG-T, to decide on establishing these sub-groups. The mandate of sub-groups should be reviewed and agreed by the MIG.

The WP 2020-2024 in its present form represents a rolling work programme until 2024 taking into account that the evaluation and possible review of the Directive might substantially impact the WP beyond 2022. The detailed arrangements for the review are set out below. Outreach to experts outside the WP and the MIF is essential for the INSPIRE implementation success and collaboration and cocreation should be sought with relevant communities working on environmental and digital policies.

Finally, implementation of the agreed actions under the WP will not happen if the necessary resources are not allocated by all partners involved. The EU partners will prioritise their resources around the agreed core actions. However, a concrete commitment can and will only be made on an annual basis following the availability and agreement of the needed resources for such actions in the EU budget. Member State experts are invited to do the same and, ideally, inform the MIG about their investment. Actions without agreed and committed resources cannot be agreed as part of the WP. In some cases, a priority of allocation of resources will also be necessary. The Commission will, e.g. consider the reimbursement of experts in line with its procedures and budget availability, as an effective investment in the INSPIRE implementation given the administrative costs involved.

¹⁸ <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail-Doc&id=38180&no=4>

6 Conclusions and outlook

The WP 2020-2024 is designed to continue the successful work under the MIF in the past. The WP covers the period from 2020 to 2024 clearly identifying the concrete core actions in more detail for the period 2020-2022, taking the implementation of the INSPIRE Directive to a common landing zone supporting tangible European use cases and less detailed beyond 2022 in anticipation of the evaluation and possible review of the INSPIRE Directive. Hence, a regular review of the WP will be undertaken by the MIG with input from the MIG-T, in particular monitoring progress and delivery of the agreed actions, ensuring quality control of the deliverables and identifying new activities to be included in Annex 1, provided they contribute to one of the agreed areas of work and provided resources are available and allocated. At the end of every year a review of the work programme and an updating of the specific activities and actions will take place. Finally, the partners in the WP should reach out to other communities to promote the work agreed under the WP and to increase the support base for a successful implementation of the INSPIRE Directive.

Annex 1: Core actions under the MIWP linked to the main working areas

This annex features the core MIWP 2020-2024 actions, endorsed by the INSPIRE Maintenance and Implementation expert Group, under their respective working areas.

Actions (Annex)

Working Area	Action	Description	Start data / Date of completion	core other
1	2020.1.1 Priority driven implementation	Defining INSPIRE implementation maturity levels and landing zone expectations for data sets availability (metadata), interoperability and accessibility (network services). Maximizing the reuse of national (spatial) data infrastructures.	2Q 2020 – 3Q 2020	Core (MIG subgroup)
1	2020.1.2 Need driven data prioritisation	Prioritisation methodology and selection of core INSPIRE data sets, aligned with the activity on the High Value Data sets under the Open data directive, the Commission geospatial requirements paper and the activity on priority data for environmental reporting.	2Q 2020 – 3Q 2020	Core (MIG subgroup)
1	2020.1.3 Integration/Alignment with other EU level initiatives	<ul style="list-style-type: none"> • Federated searches • Common categories definitions, register integration, • alignment/integration of EU portals (ODP, INSPIRE, Eurostat, PO) • alignment with Eu data strategy 	3Q 2020 – 4Q 2021	Core (CT) (MIG advisory)

		<ul style="list-style-type: none"> ReportNet3.0 		
1	2020.1.4 Simplification of INSPIRE implementation	In line with the priority driven implementation (action 2020.1.1) and in preparation of a possible review of the legal framework, the implementing acts implementing the Directive regarding Network Services and Metadata and the corresponding technical guidelines will be screened to identify areas where most gains could be harvested by simplification, streamlining with other digital initiatives and updating to the contemporary state of technology.	3Q 2020 – 3Q 2021	Core (MIG subgroup)
1	2020.1.5 INSPIRE Monitoring & Reporting integrated system	Continue on improving INSPIRE monitoring and reporting system for 2020 +. <ul style="list-style-type: none"> multifunctional dashboard new indicators (Users, use cases oriented)	2Q 2020 – 4Q 2022	Core (MIG subgroup)
1	2020.1.6 INSPIRE Community Forum	Theme specific issues of data specifications & exchange of implementation experiences in thematic domains		Core (CT + Thematic facilitators)
1	2020.1.7	Priority list of data sets for eReporting		Core (MIG subgroup)
1	2020.1.8	Improving accessibility of data sets through network services		Core (MIG subgroup)
1	2020.1.9	OAPIF – OGC API Features encoding good practice		Core (MIG subgroup)
2	2020.2.1 Alignment with EU digital policies	This umbrella action should pave the way to converge in a common initiative in the context of the EU data strategy and the development of a European Green Deal data space:	1Q 2021 – 4Q 2022	Core (CT) (MIG advisory)

		<ul style="list-style-type: none"> • Initial preparatory work to define critical elements for convergence at governance/legal/technical level • Definition of roles and responsibilities (within EC and also with MS) • Funding options, resourcing • Legislative framework / instruments <p>Synergies with other relevant initiatives (e.g. UNEP's digital ecosystem for environment and sustainability) and platforms</p>		
2	2020.2.2 Towards the definition of digital Ecosystem for the environment and sustainability	<p>Include the following sub-actions of exploratory* nature (studies, pilots, tests):</p> <p>1) Data content level (2020/21)</p> <ul style="list-style-type: none"> • Identification of the full spectrum of data sources relevant for environment/sustainability: official monitoring data, INSPIRE, other public sector data, Earth Observation/Copernicus, citizen science campaigns, sensors, drones, etc. • Definition of the reference data for the data space (covering environment, geospatial, climate-related data – synergies with HVD/PDS/Core Reference Data) • Raw Data vs Analysis-Ready Data; Near Real Time data; Private sector data; • Data quality, data validation (semantic validation) <p>2) Data governance level (2020/21)</p> <ul style="list-style-type: none"> • Data policy sharing and licensing schemes (inc. Open Data) 	3Q 2021 – 2Q 2023	Core (CT + Member States)

		<ul style="list-style-type: none"> • Data management aspects: preservation, curation, etc. • Data governance models • Data protection <p>3) Technological/Infrastructure level (2020/21)</p> <ul style="list-style-type: none"> • Architectural options and technological solutions (AI and ML, big data analytics, data cubes) • Standards and interoperability aspects (interfaces –e.g. open APIs-, formats) <p>4) Analytical level (2021/22)</p> <ul style="list-style-type: none"> • Data integration, data harmonisation aspects • Analytical methods, algorithms <p>5) Application level (2021/22)</p> <ul style="list-style-type: none"> • Definition of use cases / pilots in the domains of environmental and climate policies, circular economy, climate adaptation... (inc. definition of data content/quality requirements, tools and apps needed, functionalities, etc) • Data space apps and tools (e.g. European Dashboard to monitor our natural resources/ecosystem services - or Green Deal ambitions – at different levels) • Environmental impact monitoring 		
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		<p>6) Interoperability with other Data Spaces in the overall framework of the EU Common Data Space (2022)</p> <ul style="list-style-type: none"> • Interactions across sectors (bi-directional) <p>*Implementation in earnest would come possibly in or after 2022. The WP will be updated with specific action accordingly.</p>		
2	2020.2.3 Capacity building-related and dissemination activities	<p>This umbrella action should focus on creating capacity and disseminating the concept of the digital ecosystem for the environment:</p> <ul style="list-style-type: none"> • <ul style="list-style-type: none"> ○ Capacity building within EC (training, workshops) ○ Activities with/within MS <p>Conferences, seminars, etc.</p>	1Q 2023 – 4Q 2024	

Annex 2: Other activities of interest (for information)

This annex includes other projects and activities of interest, e.g. from ISA² actions, Digital Europe Programme, Horizon Europe, ReportNET3.0, national or regional projects, etc.

(Further input needed)

Action	Description	Start data / Date of completion	Who
2020.4.1 Reportnet 3.0	Follow up on the development of the EEA Reportnet 3.0 reporting infrastructure in view of the reuse of INSPIRE data and services for reporting obligations.	1Q 2020 – 3Q 2021	INSPIRE CT Member State experts MIG for Information

Annex 3: Transition from the MIWP 2016-2020 to the MIWP 2020-2024

This annex describes the transition of the actions included in the 2016-2020 work programme to the WP 2020-2024. Actions from the MIWP 2016-2020 that will be further pursued will be included in Area of Work 1.

Transition of actions from the MIWP 2016-2020 to the WP 2020-2024

ID	Title	Status in the MIWP 2016-2020	Status in the WP 2020-2024
2016.4	Theme specific issues of data specifications & exchange of implementation experiences in thematic domains	ongoing	Included in Annex 1 under Area of Work 1 as action 2020.1.6.
2016.5	Priority list of data sets for eReporting	Ongoing	Included in Annex 1 under Area of Work 1 as action 2020.1.7
2017.1	Drafting of "Master Guidelines" for the INSPIRE Directive	On hold	Removed from WP.
2017.4	Validation and conformity testing	Proposal to close. (Completed in March 2020)	
2018.1	Streamlining the monitoring and reporting for 2019 (phase 2)	Ongoing. Proposal to close. (Completed in March 2020)	A new action for the further maintenance and development of the system to be introduced.
2019.2	Improving accessibility of data sets through network services	Ongoing	Included in Annex 1 under Area of Work 1 as action 2020.1.8
2020.x	OAPIF – OGC API Features encoding good practice	Proposed	Included in Annex 1 under Area of Work 1 as action 2020.1.9
2017.2	Alternative encodings for INSPIRE data	Proposal to close. (Completed in March 2020)	
2017.3	Improved client support for INSPIRE data	Proposal to close. (Completed in March 2020)	

ID	Title	Status in the MIWP 2016-2020	Status in the WP 2020-2024
2016.1	INSPIRE fitness for purpose – Analysis	Proposal to close after finishing the simplification of interop regulation. (Completed in June 2020)	
2016.2	Streamlining the monitoring and reporting for 2019	completed in June 2017 (phase 1); follow-up to be carried out under a new action 2018.1	
2016.3	Validation and conformity testing	completed in June 2017; follow-up to be carried out under action 2017.4	